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WILD FLOWERS OF CANADA



THE MONTREAL STAR, Montreal.

— BY SPECIAL ARTISTS AND BOTANISTS —

ENDORSED BY UNIVERSITY BOTANISTS OF BOTH CONTINENTS.



INTRODUCTION

EMERSON remarks in his Essay on Nature that, were the stars to shine but once in a thousand years, men would preserve for many generations the remembrance of the city of God which had been shown. He might have said the same thing of the flowers, which are the "stars that in earth's firmament do shine." Did no blossom brighten the world save once in a thousand years, the memory of that one year would be cherished from generation to generation down through the ages. With what delight, what awe, would man regard each flower, in meadow, moor or glade, as for the first time it stood before him, like Ruth amid the golden corn, to charm with its fresh beauty his soul, weary with the dull things of life! His idea of the Creator, his whole soul, would expand with each unfolding bud, his hopes be brightened and his fears assuaged by the radiant loveliness of the new creation, and his life be made redolent with the delicate and ravishing odors for the first time floating upon the tremulous breeze.

But the stars keep their appointed vigils every night, and by day the flowers unfold their blossoms in the sunny wilds. From one end of this vast continent to the other, which embraces every climate from that of the frozen north to the tropics, the earth is carpeted with multitudinous flowers, each coming in its due season, living its pure life, and passing away, unknown, alas, to millions who know not what they miss. From the stunted pine, bending beneath its burden of almost perennial snows toward the arctic circle, to the graceful palmetto, flourishing beneath an almost vertical sun; from the slender poppy which braves the boreal climate of bleak coasts and dreary barrens trodden only by the Esquimaux, to the delicate Southern orchid daintily clinging to oak or cypress, the continent of North America affords such a variety of plants that not even the botanist can hope to know them all. Dr. Asa Gray, the famous botanist, devoted half a century to their classification, without bringing his labors to an end. And Canada has the majority of them.

It is in some respects surprising, but none the less true, that while man is surrounded in this favored land by a greater variety of flowers than are to be found in any other part of the globe, he is nevertheless, in most instances, like the idols mentioned in Scripture, which have eyes yet see not. The cultivated flowers of gardens and hothouses are known to some whose tastes and wealth enable them to make a hobby of this branch of floriculture, but those whose duties are too exacting to permit them such pleasures do not sufficiently realize that nature has planted for their delight myriads of wild beauties compared with whose loveliness the hothouse plant pales and sinks gradually out of mind. Nature asks in return for all her toil nothing but that we should keep our eyes open.

The dome of her conservatory is the boundless azure, and the sun itself supplies her with its warmth and light. A hundred centuries are not too long for her to devote to the development of a single plant, yet she will bend her whole energies to the perfection of a blossom which fades an hour after maturity. No bolt, no bar, no artificial

impediment shuts out the poorest among men from the enjoyment of her floral creations. Surely so generous a giver is entitled to man's appreciation of her bounty!

One requires no special education to enjoy the more striking charms of a Canadian wilderness. The dullest hind revels in those deep recesses, where, veiled in foliage, some wild, shy rivulet steals with timid music through breathless caves of verdure; in gulfs where feathered crags rise like castle walls, where the noonday sun pierces with keen ray athwart the torrent, and the mossed arms of fallen pines cast wavering shadows on the illumined foam. With what awe do we look upon patriarch trees that have been hurled headlong by the storm to dam the raging stream with their forlorn and savage ruin, and how deeply is the soil impressed in the stern depths of immemorial forests, dim and silent as a cavern, columned with innumerable tree trunks, each like an Atlas upholding its world of leaves, and sweating perpetual moisture down its dark and channeled rind. How delicious it is to float upon the calm bosom of some sluggish river or pellucid lake, among the sinuous reeds and gorgeous water lilies, startling perhaps the wild duck from its haunts, and noting the flashing eddies made by the darting fish. And with what lofty, unspeakable thoughts we stand amid our noble forests, where, perhaps, the crimsoning Virginia creeper fills the wood with sudden flashes of color. "In the woods is perpetual youth." There we learn not less our greatness than our littleness; there the voice of flattery and censure is hushed, and there we realize our true place in the universe.

But though the influence of the wilderness makes itself felt in even the most heedless soul, it is only the lover of plant life who is able to enjoy nature to the full. As the lover of music is charmed by harmonies which escape the ear content with a simple air, so he who knows our wild flowers, not necessarily as a botanist but as a friend, finds a newer, grander harmony among the woods and sees in meadow and marsh and sandy waste beauties, marvelous beauties, which escape the ignorant or indifferent observer.

The green and glistening mosses hiding the rough ground, mantling the rough rocks and concealing under their kindly shroud the dead and decaying tree trunks, the sudden stumbling upon some bed of lilies of the valley that uplift their graceful bells, the sight of a nest of violets, like some bit of fallen sky, or the host of trilliums which we may encounter in some quiet vale, all these lend a charm to every ramble.

It is to familiarize our people with their incomparable wild flowers in detailed form and color, that this work was designed. Ever since its first pages were commenced, the publishers have been earnestly urged by leading botanists to resist all temptation to make fanciful pictures, as is so generally done in commemorative cards. Great stress was laid on the advisability of giving each flower just as it grows, just as it looks in nature. Only by this method could it have its highest educational value. The success of the work proves the value of the advice, for it is everywhere being received with a most cordial welcome. The parts complete will embrace nearly three hundred plates, portraying the choicest flowers of every Province and Territory in the Dominion. Many charming flowers native to the United States have strayed across the Canadian border; that these friends from afar may be identified in their new home, their portraits are included in this collection—as also a score or two of the striking blossoms which, chained by the sunbeam, have never wandered further than the States and Territories of the West and Southwest. Of these some will be found on Canadian Territory in unfrequented places, and these plates will be invaluable in the work of identifying and locating them. In its entirety the plates will form a volume of sterling value, charming alike to the student of plant-life and to the lover of the beautiful. If to a better appreciation of the wondrous wealth of wild and native bloom on this continent, this work brings the people of Canada, the publishers will feel it has achieved a purpose not to be despised.

THE PARTS OF PLANTS AND WHAT THEY ARE CALLED.



FIBROUS ROOT.



FLESHY ROOT.



AERIAL ROOTS.



ROOTSTOCK.



TUBER.



CORM.



THE flower or blossom and the fruit and seeds to which it gives rise, are the *Organs of Reproduction*. The rest of the plant, the *Root, Stem and Leaves* are the *Organs of Vegetation*. The root is that portion of the plant which grows down into the ground. Its function is to absorb moisture from the soil. Roots are either *fibrous* (1), that is slender; or *fleshy* (2), thickened. They are classed according to the length of time they live as *annual, biennial and perennial* roots. These terms are more commonly applied to the plant as a whole.

An *annual* plant gets its full growth, produces flowers and fruit and dies, in the same season. A *biennial* lives through two seasons. The first season is spent in the growth of root, stem and leaves. No flowers are produced. In order to provide for the next season, a quantity of food matter, starch and other substances, is stored in some part of the plant, usually in the root. This becomes thick and fleshy. Next season the flower-bearing stalk shoots up vigorously, seeds are produced, and the plant dies. A *perennial* plant lives through more than two seasons. All trees and shrubs and a great number of herbs are *perennials*.

Roots sometimes perform other functions than the absorption of moisture. In some *woody-climbers*, like the poison-ivy, short fine roots growing from the sides of the stem, act as *holdfasts*, enabling the plant to ascend a support. Such roots, being produced in the open air, are called *aerial roots* (3).

A large class of plants, called *epiphytes*, have only aerial roots. They grow usually on the branches or in the forks of trees, and have no connection with the ground. The weird hanging-moss, that makes twilight of noon-day in the forests of the Southern States, is an epiphyte. So are many tropical members of the great Orchis Family. We are all familiar with the beautiful Dendrobiums and other orchids which are grown in our hothouses, on pieces of wood with a bit of sphagnum about the roots.

Then there are the *parasitic plants*, whose roots strike into the stems or roots of other plants, drawing nourishment from them. Such is the mistletoe, parasitic on certain trees; the dodder, which climbs the stems of clover and other plants, and strikes its sucker-like roots into them; and the beechdrop, whose roots attach themselves to those of the beech.

While the root grows down into the soil, the *stem* grows upward toward the light and air. It bears leaves which the root does not. Stems may be *arborescent* (trees), that is, woody, with a main trunk; *shrubby*, woody, but branching from near the base; or *herbaceous*, not woody. When the stem is so short as to be almost or quite concealed underground, the plant is termed *acaulescent*.

According to the manner in which they grow, stems are described as *erect*, growing up vertically; *assurgent*, rising obliquely; *decumbent*, resting on the ground, but rising at the end; *procumbent*, lying flat on the ground; *creeping*, trailing on the ground and rooting at the joints.

Stems, like roots, are sometimes modified for special purposes. Many perennial plants have short and thick underground stems, which serve as storage-places for the food-supply laid up by the thrifty plant for next season's



NO. 7. BULB.



NO. 8. STIPULES.



NO. 9. NET VEINED.



NO. 10. PARALLEL VEINED.



NO. 11. LINEAR LEAF.



NO. 12. LANCEOLATE.



NO. 13. OVATE.



NO. 14. ORBICULAR.
(Petiole.)



NO. 15. SPATULATE.



NO. 16. FEATHER VEINED.



NO. 17. ACUTE.



NO. 18. OBCORDATE.

growth. Though usually taken for roots, such structures are shown to be stems, by their bearing scales, answering to leaves. The *rootstock* (4) is a thickened underground stem several times longer than broad. The *tuber* (5) is a rootstock thickened at one end, as in the edible so-called "roots" of the Irish potato. The *corm* (6) is a compact and rounded rootstock. The *bulb* (7) is a corm, the greater part of which is made up of fleshy scales.

Stems have two principal ways of *climbing*, by twining bodily around the supporting object; or by the aid of *tendrils*, modified branches or leaves which serve as holdfasts, as in the Virginia Creeper.

Thorns are modified branches. They are doubtless designed to protect the plant against animals that would strip it of its bark or leaves, if undefended.

Leaves are appendages of the stem, which serve as the digestive organs of the plant. They assimilate the crude sap of the plant into material for building up its tissues. Leaves are arranged on the stem in two principal ways. They are *alternate*, when there is but one at each joint; and *whorled*, when there are more than one. When the whorl consists of but two leaves, they are said to be *opposite*.

The large usually flat part of the leaf is called the *blade*. The stalk which bears the blade is the *petiole*. The two small blade-like bodies at the base of the petiole are the *stipules* (8). When the petiole is wanting, the blade is *sessile*. The *stipules* are often absent or inconspicuous.

There are two principal modes of *veining* in leaves. When the veins branch again and again, and the branches run together so as to form a network or mesh, the leaf is *net-veined* (9). When the veins run side by side without seeming to branch or run together, the leaf is *parallel-veined* (10). Net-veined leaves are *feather-veined* (16) when the secondary veins start from a principal vein running through the centre of the leaf from base to apex, the *midrib*. They are *palmately-veined* (9) when several veins of about equal size start together from the base of the leaf and run out toward the margin like radii of a circle.

There is great diversity in the general outline of leaves. Some of the more common forms are: *Linear*, comparatively narrow and of about the same width from one end to the other (11); *oblong*, of same outline, but broader; *lanceolate*, narrow but broader at base and tapering toward the apex (12); *elliptical*, oblong or linear, but narrowed at both ends; *ovate*, egg-shaped, broader at base and narrowed toward apex (13); *orbicular*, rounded or circular in outline (14); *oblanccolate*, lanceolate reversed, that is, broader at apex and tapering toward base; *spatulate*, oblanceolate, with the narrowing toward the base more abrupt (15); *obovate*, the reverse of ovate (16).

The apex of the leaf may be *acuminate*, tapering into a point (12); *acute*, more abruptly pointed (17); *obtuse*, not pointed, rounded (13); *truncate*, as if cut off; *emarginate*, with an indentation in the margin corresponding to the end of the midrib (18); *obcordate*, with the indentation deeper.

The first four terms apply as well to the base of the leaf. Other terms used in describing the base are: *cordate* or *heart-shaped*, the two sides of the leaf coming upward so as to leave a notch at the base (19); *reniform*, with a deeper and more rounded indentation or sinus (9); *auriculate*, with the two sides of the leaf prolonged at base into rounded lobes or ears (20); *sagittate*, with these lobes acute and pointing downward (21), *hastate*, with the lobes acute and pointing outward (17); *peltate*, when the lobes are grown together, so that the petiole seems attached to the middle of the leaf (14); *perfoliate*, when the leaf is sessile on the stem and the base has grown around



NO. 19. CORDATE.



NO. 20. AURICULATE.



NO. 21. SAGITTATE.



NO. 22. PERFOLIATE.



NO. 23. UNDULATE AND
SINUATE.



NO. 24. SERRATE.

it (22) so that the stem appears to pass through the leaf; or, when two opposite sessile leaves have their bases grown together, as in the Tinker's Weed.

The *margin* of the leaf may be *entire*, forming an unbroken line (10); *undulate* or wavy; *sinate*, more deeply wavy (23); *serrate*, with short, sharp teeth, pointing upward or inward (24); *dentate*, with teeth blunt and pointing outward (25); *crenate*, with rounded teeth (26). When these breaks in the margin extend deeper into the blade, the leaf becomes *incised*, with coarse jagged teeth (27); *lobed*, with incisions deeper but not extending more than half way from margin to mid-rib (28); *cleft*, when the incisions extend more than half way; and *divided*, when the incisions reach the mid-rib (29).

Compound leaves have the blade split up into separate parts or *leaflets* (30). When the leaflets are arranged like the veins in a feather-veined leaf, the leaf is *pinnate* (30). When arranged like the veins in a palmately-veined leaf, the leaf is *palmate* (31). The divisions of a compound leaf may be further divided, so as to make the leaf twice compound, or three times, or even more.

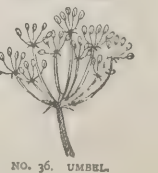
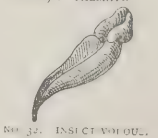
Special forms of leaves serving other functions than those of vegetation are sometimes met with. Sometimes the end leaflet of a pinnate leaf is changed into a *tendrill* to aid the plant in climbing (30). The fleshy scales of *bulbs* (7), in which food-matter is stored, are leaves. So are the thinner scales of *winter-buds*, occurring on most trees and shrubs.

The most extraordinary forms of leaves are those of the so-called *Insectivorous Plants*. Here the leaves are designed for the purpose of entrapping insects and assimilating them as food for the plant. A common example is the *Sarracenia Purpurea* or Side-saddle Flower. This has the margin of the leaf folded together so as to form a "pitcher," closed at the bottom, open at the top (32). In some southern *Sarracenia*s the tip of the blade curves over so as to form a lid for the pitcher. The pitcher contains a sticky liquid, in which intruding insects are drowned.

In another group of insectivorous plants, represented with us by the little sundews of the bogs, there is a different preparation for a warm welcome to insect guests. The leaf is fringed with gland-tipped hairs, which may be likened to the tentacles of a cuttle-fish. When the unsuspecting insect alights on the leaf, the surface is irritated, causing the tentacles to bend in toward the middle. Thus the cause of the disturbance is imprisoned and the nourishing part of its body is digested by the leaf. Then the tentacles relax. That the insectivorous plant actually feeds on the insect which it captures was proved conclusively by Darwin. He showed that plants of this kind when furnished with insects grew more vigorously than when insects were prevented from reaching them.

Inflorescence is the manner of arrangement of flowers on the stem. Flowers are *solitary* or *clustered*. They may be borne on a special stalk, the *peduncle*, or they may be *sessile*, growing on the stem without any such stalk. When flowers are in clusters, the stalk bearing the whole cluster is the *peduncle*, while the stalk bearing each individual flower is the *pedicel*. The small leaves growing on peduncles or pedicels, or on the main stem among the flowers, are called *bracts*. They are usually smaller than ordinary foliage leaves, and often scale-like.

The principal sorts of flower clusters are: the *raceme*, consisting of a stalk or axis bearing pediceled flowers, forming a cluster usually considerably longer than broad (33); the *spike*, a raceme with sessile flowers (34); the *corymb*, a raceme with flowers on pedicels of different lengths, but all reaching to about the same level (35); the





NO. 37. A HEAD.
(The Head.)



NO. 38. CYME



NO. 39. COMPLETE FLOWER.
(4 PARTS.)



NO. 40. STAMEN.



NO. 41. PISTIL.



NO. 42. IRREGULAR.

umbel, a corymb with pedicels all of the same length (36). The *head* a corymb with pedicels very short or wanting (37); the *cyme*, differing from the corymb in that its uppermost and therefore innermost flowers are the first to open (38).

The complete flower consists of four sets of parts—the *sepals* (39*d*), the *petals* (39*c*), the *stamens* (39*a*), and the *pistils* (39*b*). The sepals, taken together, are termed the *calyx*. The petals, together, make up the *corolla*. The calyx and corolla together are termed the *floral envelope*, while the stamens and pistils are the *essential organs* of the flower. The calyx, or outer row of floral leaves, is usually green, but not always. The corolla, or inner row of floral leaves, is usually delicate in texture and of some other color than green. When the petals are grown together the corolla is *gamopetalous*. When there is no sharp distinction between calyx and corolla, as in the tulip or the lily, the floral envelope is termed the *perianth*.

The *stamen* (40) consists of a stalk or *filament* bearing a two-celled box, the *anther*, which holds the *pollen*. Pollen is the substance which looks, to the unaided eye, like fine yellow dust. The *pistil* (41) consists of the *ovary* or receptacle in which the *ovules* or undeveloped seeds are contained, surmounted by the *style*, a usually slender stalk, which is dilated at the summit into the *stigma*. The stigma is the flat or rounded body on which the pollen falls. Each tiny pollen grain, when it alights on the stigma, sends out a minute tube which runs down through the style into the ovary. When the tube reaches an ovule, the process known as *fertilization* takes place. The nature of the process is not understood. The result is that the ovules develop into *seeds* from which new plants may arise, while the ovary enlarges into the *fruit*. The term fruit is applied by the botanist, not merely to the edible kinds, like strawberries, but to every structure which contains the seeds. The balls that are borne on the "sycamore," or button-wood tree, are as truly fruit as is the peach.

A flower which has both stamens and pistils is *perfect*. If it has only stamens it is *staminate*. If only pistils, it is *pistillate*. When a flower has all the members of one set of parts, *e. g.*, all the stamens or all the petals alike, it is said to be *regular*. Otherwise it is *irregular*. Most *irregular flowers* have the parts arranged so as to aid in *cross-fertilization* by means of insects, as the flowers of the Orchids and of the P2a Family.

Cross-fertilization is the carrying of pollen, by the aid of insects, from one flower to the stigma of another, on the same plant or on a different plant of the same kind. The insect visits the flower in search of nectar or honey. He brushes against the anther and some of the pollen falls upon him. This he carries to the next flower visited and deposits it on the stigma. It is undoubtedly an advantage to plants to have their flowers cross-fertilized, rather than to have the stigma receive pollen from the anthers of the same flower. Why, we do not know. The orchids, to which our lady's-slipper and meadow-pink belong, often have elaborate contrivances for aiding insect-friends to accomplish their useful task. Their flowers are always irregular (42).

The *gamopetalous corolla* has several special forms. These are: *rotate* or *wheel-shaped*, flat, and with hardly any contracted part or *tube* (43); *salver-formed*, with a *limb* or border spreading out at right-angles to the tube (44); *bell-shaped*, with the tube open and widening toward the summit, and with no distinct limb (45); *funnel-shaped*, with a narrow tube and comparatively wide limb, like an ordinary funnel (46); *tubular*, with a narrow tube, not widening toward the summit, and no distinct limb; *labiate*, two-lipped, as in the Mint Family (47); *ligulate*, strap-shaped, as in the Chicory and most of the Sunflower Family (48).



NO. 43. ROTATE OR WHEEL SHAPED.



NO. 44. SALVER FORMED.



NO. 45. BELL SHAPED.



NO. 46. FUNNEL SHAPED.



NO. 47. TUBULAR.



NO. 48. LIGULATE.



— 1 —

LUPINUS PERENNIS.

PERENNIAL LUPINE.

JUNE—JULY.



— 2 —

CYPRIPEDIUM PUBESCENS.

YELLOW LADY'S SLIPPER.

MAY.

PLATE 1.

PERENNIAL LUPINE. LUPINUS PERENNIS. (PEA FAMILY.)

Perennial; roots stoloniferous; stems erect, branching or strict, more or less hairy; leaves hairy, long-petioled, palmate, leaflets usually eight or ten; flowers in a long, terminal raceme, large, showy blue or purple on spreading pedicels; corolla papilionaceous or butterfly-shaped; pods hairy.



HE perennial lupine is a handsome and conspicuous plant. The stems grow in clumps and are from ten to eighteen inches high. The long wand-like racemes have a peculiar and striking appearance. The very pretty blue and purple flowers entitle the lupine to a high place among our more beautiful wild flowers. A form occasionally occurs in which the flowers are pure white.

The lupines are represented in Eastern North America by two species. One, the plant figured here, is native from Canada to Florida. The other, *Lupinus villosus*, is a native of the sandy pine-barrens of the Southern States. It has leaves of but a single leaflet. The pods are strikingly conspicuous, being covered with long, silvery hairs. In the West, on the other hand, there are numerous species, and it is often quite difficult to tell one from the other. All are very ornamental plants.

The name lupinus is from the Latin *lupus*, a wolf, because these plants are supposed to exhaust or devour the soil. The charge can hardly be brought against our species, which confine themselves to poor, sandy soil. Wood says of our plant: "It is often called sun-dial, from the circumstance of its leaves turning to face the sun from morning till night."

PLATE 2.

LARGER YELLOW LADY'S-SLIPPER. CYPRIPEDIUM PUBESCENS. (ORCHIS FAMILY.)

Perennial; root a cluster of rather thick fibres; stem erect, one or two feet high, rather hairy, leafy; leaves many-nerved, ovate, clasping, acute, pubescent; flower solitary, rarely two or three, at summit of stem; lip large, boatshaped, rather pale yellow; petals brown, twisted.



NE of the oddest and one of the fairest of our flowers. The plants usually grow in groups of two or three. When one first comes upon them, in the shade of a deep forest, standing erect beneath some tree, one is sure to be surprised as by the discovery of hidden gold. The yellow flower often has the look of a ray of sunlight upon a leaf. The lip is outstretched, as if in greeting. This, with the twisted petals standing out at right angles to it, gives a wide-awake effect to the flower, and shows it near of kin to the pampered darlings of the conservatory—the foreign orchids.

To the imaginative there is something unearthly, fairy-like, about the lady's-slipper. The lip seems fashioned for the tiny foot of some small, elfin woman. One might fancy spirits of the woodland holding their summer revels here. Mayhap some fairy Cinderella has lost her slipper, unnoticed by the prince!

The large yellow lady's-slipper is to be met with on rich, wooded hillsides. With it is often found the small yellow lady's-slipper, which has a smaller flower of a brighter yellow, and with a slight fragrance. Both species occur in Canada and in the Eastern States. They flower in May and June. *Cypripedium* is derived from two Greek words and means "Venus' buskin"—a pretty name, truly. The specific name refers to the hairiness.



— 3 —
IRIS VERSICOLOR.
BLUE FLAG.
JUNE.



— 4 —
LONICERA CILIATA.
FLY-HONEYSUCKLE.
MAY.

PLATE 3.

BLUE FLAG. IRIS VERSICOLOR. (IRIS FAMILY.)

Perennial, whole plant smooth; rootstocks contracted at the nodes; stems rather stout, leaves quite long, equitant, mostly clustered at the base of the stem; flowers on short peduncles, large, blue; the three outer divisions of the perianth variegated with yellow, spreading.



BLUE FLAG is one of those hardy flowers that do not hide their beauty in the darkness of woods, but parade it, as if conscious of it, in the broad light of open meadows. We may well forgive a certain lack of modesty in so handsome a plant. None of the cultivated flags can surpass this American species in beauty and grace of form. Some of our native species have the petals prettily bearded, but in the blue flag, they are naked. Iris versicolor grows from the northern boundary south to the Gulf. It is quite a common plant throughout its range, probably the most abundant species of iris in North America. It is to be found in wet meadows and at the margins of ponds, opening its showy flowers in May or June. The root of the blue flag is strongly astringent, forming the basis of several nostrums in high repute among country folk.

The pretty name, *Iris*, is that of the attendant of Juno who personified the rainbow. The wealth of color displayed by these flowers well merits the name. They are veritable rainbows of the earth. *Versicolor* means "of varied colors." So the generic and specific names express pretty much the same idea.

PLATE 4.

FLY-HONEYSUCKLE. LONICERA CILIATA. (HONEYSUCKLE FAMILY.)

Shrub, branching with gray bark; leaves ovate, sometimes cordate, petioled, margins ciliate (fringed with hairs); flowers in twos on slender peduncles that spring from the axils of the leaves; corolla five-lobed, funnel-shaped, greenish-yellow in color; fruit a red berry.



HIS pretty little shrub grows usually in damp, rocky woods. It is a northern plant, not occurring south of Pennsylvania and extending westward to Minnesota. The graceful twin flowers appear usually in May, before the leaves are quite developed. They are not unlike those of its cousins, the *Linnaea*, in their general form; but are considerably larger and of a different color. The corolla has a short spur at the base, projecting outward, giving the flower an attractively odd look. Each flower produces a light-red, egg-shaped berry, the flesh of which is watery and insipid. The two berries on the same stalk do not grow together as in some nearly related species.

The fly-honeysuckle, although closely related to the common woodbines and honeysuckles of the gardens, is quite different in general appearance and habit. A casual observer would hardly suspect the relationship. Even the flowers, with their wide-mouthed and almost regular corollas, do not, at first sight, seem to resemble the long, tubular flowers of the cultivated honeysuckles. The latter are, moreover, deeply and irregularly two-lipped.

Lonicera was named for Lonitzer or Lonicerus, one of the old German botanists. The specific name, *ciliata*, refers to the fringed margins of the leaves. Why the plant is called fly-honeysuckle is not apparent.



— 5 —

STACHYS PALUSTRIS.
MARSH HEDGE-NETTLE.
JUNE.



— 6 —

SAPONARIA OFFICINALIS.
BOUNCING BET.
JUNE—JULY.

PLATE 5.

MARSH HEDGE-NETTLE. STACHYS PALUSTRIS. (MINT FAMILY.)

Perennial, stem erect from a creeping root stock four angled, hairy, one to three feet high; leaves sessile, rounded or sometimes subcordate at base, lanceolate or ovate-lanceolate; crenate or serrate, densely downy, pubescent; flowers in close verticils, the whole inflorescence spike-like; corolla deeply and widely two-lipped, rose-pink.



ALTHOUGH a common plant in the old world, *stachys palustris* is not abundant with us, notwithstanding the fact that it occurs over a wide range of territory. It grows from Canada south to Pennsylvania, and westward. Hence it is a decidedly northern plant. It seems ever a-thirst, and so clings to the marshes and the moist woods. The rather showy flowers open in summer. The effect of the rose-red corollas in mass is quite pretty.

There are several species of *stachys* in North America. Of these, some of the southwestern species are much handsomer than the eastern ones. *Stachys coccinea*, a native of Arizona and Mexico, has flowers of a rich scarlet, hardly less vivid than those of the scarlet sage of the gardens. In Europe, the species of *stachys* are well-known plants of hedge-rows, fields and bogs. The "woundwort," *stachys arvensis*, a common species abroad, growing in cultivated fields, is beginning to make its appearance in some of our Eastern States. It is easily recognized by its decumbent stems.

These plants do not possess the essential oil which gives the aromatic odor characteristic of most of the mint family. Nor have they ever been turned to practical account, though the name "woundwort" would suggest medical properties. *Stachys* means "a spike," a name very appropriately applied to this genus; *palustris* signifies "growing in swamps." The popular name of "hedge-nettle" is doubtless derived from the nettle-like appearance of the leaves.

PLATE 6.

BOUNCING BET, SOAPWORT. SAPONARIA OFFICINALIS. (PINK FAMILY.)

Smooth; stems erect or ascending from a perennial root, jointed; leaves ovate, obtuse or somewhat acute, sessile or very short-petioled, entire, with three principal veins; flowers in close fascicles, the lower on rather long axillary peduncles, the upper crowded; corolla pale pink or nearly white.



DECIDEDLY a handsome plant, adventive from Europe. It prefers to make its home in shaded waste ground or roadsides, and spreads very rapidly in such situations. The deep green leaves and flowers of a dainty pink make a pretty combination. The blossoms have a delicate, agreeable odor that enhances the attractiveness of the plant. Were it not so common, the *saponaria* would be prized by gardeners. It is not an injurious weed, rarely taking possession of cultivated ground. It is certainly a more welcome addition to our waste-ground flora than many of its compatriots. The Bouncing Bet is spreading rapidly in the Eastern States. It was at one time much planted in gardens, which has aided it in establishing itself far and wide.

The pink family, to which the *saponaria* belongs, contains some of our most beautiful flowers and some of our most insignificant weeds. Among our native plants the catch-flies, with their flowers of brilliant scarlet, pink or white, are prodigal of charm.

Saponaria means soapy, so named because the juice of the plant forms a lather when mixed with water; *officinalis* indicates that the plant is used in medicine. It is the large acrid root that is official.



— 7 —
 CALTHA PALUSTRIS.
 MARSH MARIGOLD.
 MAY.



— 8 —
 CYNOGLOSSUM OFFICINALE.
 HOUND'S TONGUE.
 JUNE.

PLATE 7.

MARSH MARIGOLD. *CALTHA PALUSTRIS*. (CROWFOOT FAMILY.)

Perennial, smooth; stems erect or ascending from a thickened rootstock, a foot or two high, branching; leaves bright green, rounded, cordate or reniform, usually dentate, the lower long-petioled, the upper nearly sessile, flowers yellow on long peduncles; petals wanting.



MARSH-MARIGOLD is one of the brightest and most conspicuous of our early spring flowers. The golden-yellow blossoms are set off to great advantage by the rich green of the foliage, making the plant truly a thing of beauty. It makes its home in meadows and bogs, one of the first flowers to appear in such comparatively exposed situations. The early wild-flowers, for the most part, prefer the shelter of the woods.

The caltha is one of those plants found both in the old world and in the new. This not uncommon fact in geographical distribution, is accounted for on the theory that the land of the Arctic regions was once a single unbroken stretch between Asia and America.

The marsh marigold is a familiar plant in most parts of the Northern States. In the South, like most northern plants, it retires to the cool recesses of the mountains, to find there such a climate as it left at home. The tender leaves and shoots in early spring are sometimes eaten as "greens," more commonly in the old world.

Caltha is from a Greek word signifying a chalice or cup, very appropriate as descriptive of the pretty, cup-shaped-flowers; *palustris* means "growing in marshes." The plant is sometimes called "cowslips," but this name belongs properly to a European species of primrose.

The marigold's home, often in the mantled swamp, has little of welcome. Hence, rather than from any quality in the blossom itself, the marigold in the language of flowers denotes pain, chagrin. The marsh marigold is Shakespeare's "Mary-bud."

PLATE 8.

HOUND'S TONGUE. *CYNOGLOSSUM OFFICINALE*. (BORAGE FAMILY.)

Stem erect, two or three feet high, branching above, soft, hairy; leaves ovate-lanceolate, the lower petioled, the upper sessile, sometimes subcordate at base, hairy; flowers in panicle racemes; corolla red, funnel-shaped, not very conspicuous; fruit consisting of four nutlets covered with short hooked prickles.



THIS plant greets us in roadsides and pastures. It is usually denominated a weed, because as yet we have not been able to find out what it is good for; we are sometimes tempted to give it a worse name than weed when we return from a walk to find our clothes covered with its burr-like fruit. These burrs sometimes give trouble by clinging to the fleece of sheep. But if we are willing to overlook this annoying propensity we shall find some redeeming traits in the hound's tongue.

The contrast between its velvety, dark-green leaves and crimson flowers is refreshing to the eye, and tempts one to the gathering. The flowers, says Darlington, are "sometimes milk-white." The odor of the plant is decidedly peculiar. To most people it is rather disagreeable. It has been compared, with exaggeration, to that of the nests of mice.

The hound's-tongue is pretty well naturalized in eastern North America. It is not found far from human habitations, its proclivities being evidently domestic. The blossoms open in June and July.

Cynoglossum is the exact equivalent of the popular name—dog's tongue. The leaves are supposed to bear some resemblance to the tongue of a dog.

PLATE 9.

BLUE VERVAIN. VERBENA HASTATA. (VERBENA FAMILY.)

Plant more or less hairy; stem erect, tall, sometimes six feet high; leaves petioled, sharply serrate, ovate-lanceolate or lanceolate, acute, at both ends, sometimes hastate at base, with conspicuous veins; flowers small in dense, panicled spikes; corolla deep-blue, salver-shaped.



WITH its tall, upright stems and spikes of dark violet-blue flowers, the blue vervain makes a goodly show among the more humble weeds of wayside or bottom-land. The individual flowers are quite small and inconspicuous; but, growing in close clusters, their rich color is very effective. The leaves, however, are coarse and "weedy" looking. They suggest with unpleasant force, those of a near relative, the unsightly white or nettle-leaved vervain, which usually grows with the blue.

That these plants are first cousins of the large-flowered, many-colored verbenas of our gardens, seems impossible. Yet, if we place the flower of the blue vervain beside that of the cultivated verbenas and compare them closely, the family resemblance peeps out beneath all the magic disguise wrought by the gardener's skill.

The blue vervain is a common plant in roadsides and fence corners, and on the low, sandy banks of rivers. It is found over the greater part of the Eastern States, flowering in midsummer.

Verbena is an ancient name for a sacred plant, of no apparent application to this genus. An old name for *verbena hastata*, "Simpler's Joy," suggests that the "herb doctors" find virtue in it.

In the language of flowers, the vervain signifies "enchantment."

PLATE 10.

CONE-FLOWER. RUDBECKIA HIRTA. (SUNFLOWER FAMILY.)

Whole plant hairy; stem erect, usually branching, one or two feet high; leaves ovate to lanceolate, the lower on petioles, the upper sessile; flowers in rather large, terminal heads; ray flowers ligulate, bright orange-yellow; disk, dark purplish-brown.



ONE-FLOWER, or "nigger head," as the children call it in the West, is one of the showiest of our summer wild flowers.

The large heads, with their bright colored rays (the outer row of strap-shaped flowers) in strong contrast with the almost black flowers of the disk, are very attractive and striking. Like all the sunflower family, the cluster or head of flowers resembles a single flower. The unobservant usually take the rays for petals, and the disk flowers for stamens and pistils.

The cone-flower grows in dry fields. It would be difficult to imagine a more brilliant sight than a field in June or July covered with these flowers. Apart from the blossom, the plant is not attractive. The stem and leaves are quite rough to the touch, being covered with stiff hairs, which give the plant a hoary appearance. The manner of growth is ungraceful. But most of us are willing to overlook these deficiencies, in view of the beauty of the heads. For these alone the plant is worthy of cultivation, and would be effective in mass.

Rudbeckia was named by Linnaeus for Rudbeck, who preceded him as professor of botany at Upsala, in Sweden. The specific name *hirta* alludes to the hairiness of the plant. The popular name, cone-flower, is due to the cone-shaped disk of some of its species.



— 9 —

VERBENA HASTATA.
BLUE VERVAIN.
JULY.



— 10 —

RUDBECKIA HIRTA.
CONE-FLOWER.
JULY.

PLATE II.

YELLOW FLAG. IRIS PSEUDACORUS. (IRIS FAMILY.)

From a deep and thickened rootstock ; stem erect, two feet high ; lower leaves swordshaped, very long and erect, glaucous, the stem leaves shorter ; flowers two or three at summit of stem, yellow, outer segments of the perianth spreading, the inner erect. Perennial.



ONE of the handsomest of bog plants. We are glad to note that it is becoming naturalized in America. It was reported long ago from some of the Eastern States, and is well established in the North. It has doubtless spread as an assisted immigrant from gardens into the neighboring marshes and ditches. It prefers a heavy clay soil in which the thick rootstocks imbed themselves, so that it is a difficult matter to pull them up. It is sometimes almost aquatic, the lower part of the plant being occasionally under water. The leaves are very long and rigid. The large, bright yellow flowers are singularly attractive, contrasting well with the more common blue flags. The rootstocks, like those of the blue flag, are used in medicine. They much resemble those of acorus calamus, whence the specific name, pseudacorus—false acorus.

One of the showiest of the numerous European species of iris, iris germanica, the common flag of gardens, is naturalized in Virginia. An odd species is a small woodland plant in England—the “roast beef plant.” It has rather inconspicuous, dull purple or yellowish flowers. Its most striking peculiarity is its odor, suggesting that of roast beef.

PLATE 12.

CANADA MINT. MENTHA CANADENSIS. (MINT FAMILY.)

Perennial, hairy or almost smooth ; stems decumbent or nearly erect, four angled, leaves opposite, ovate-lanceolate, the lower on long, slender petioles, the uppermost nearly sessile, acute at each end, serrate, thin ; flowers in dense, axillary clusters, small, white labiate.



ALTHOUGH several kinds of mint have been imported from Europe into this country, we have but one native species in eastern North America, the Canada mint. This is not a decidedly showy plant, although the dark green foliage and the clusters of tiny white flowers are rather pleasing. The very hairy form is less attractive, having a grayish aspect. It has not the warm, aromatic fragrance of the peppermint and the spearmint. Gray compares the odor of the ordinary form to that of pennyroyal, likening the odor of the smooth variety to the horsemint, monarda.

Nearly all the members of the mint family have little glands on the leaves, in which is secreted a volatile oil. To this oil is due the strong and often delightful odor characteristic of these plants. Every one is familiar with the spicy peppermint, the aromatic sage, the fragrant thyme, the lemon-scented balm—and, among our own native plants, the peculiar perfumes of the horsemint, the dittany and the American pennyroyal. Perhaps no other single family of plants furnishes such a variety of odors.

The Canada mint grows in low ground, especially near the banks of rivers. It flowers in August and September. The stems usually lie on the grounds, rising at the ends.

The name mentha is of mythological origin. According to the fable, a nymph was transformed by Proserpine, the wife of Pluto, into the plant that now bears her name.



— 11 —

IRIS PSEUDACORUS.

YELLOW FLAG.

JUNE.



— 12 —

MENTHA CANADENSIS.

CANADA MINT.

JULY.

PLATE 13.

CHICORY. CICHORIUM INTYBUS. (SUNFLOWER FAMILY.)

Perennial, somewhat hairy; root long, thickened; stem erect, much branched, channeled; lower leaves almost divided, long petioled, upper sessile, clasping, toothed, uppermost very small; heads arranged along the sides of the branches, sessile, rather large, with a double involucre; flowers all ligulate, blue.



THE chicory is one of the many plants that have come to us from Europe. The number of these waifs that find, first a footing, then a home and often a kingdom on our shores, is always increasing. Some are not unwelcome guests, but the greater part are our most troublesome and most persistent weeds. The rapidity with which such European plants as the common thistle, the dog-fennel, the pigweed and the purslane drive out our native plants and take possession of fields and waysides, would indicate that they have some advantage over ours in the struggle for existence. Such is indeed the case. The old world plants are favored because they leave their insect or other enemies behind them, when they cross the ocean. Ours have always their wonted drawbacks to contend with while engaged in an unequal fight with the invaders.

Thus the chicory has made itself a familiar object in waste places and at roadsides, often proving itself a most undesirable addition to our flora. It is well naturalized in the Northeastern States, but is yet rare in the South. The heads of pretty, azure-blue flowers open successively during the greater part of summer and autumn, "to match the sky," sings Emerson.

The name *Cichorium* is of Arabic origin.

PLATE 14.

PINK OR STEMLESS LADY'S SLIPPER. MOCCASIN FLOWER. CYPRIPEDIUM ACAULE. (ORCHIS FAMILY.)

Perennial; roots fibrous, thickened, springing from a short, thick rootstock; leaves large, ovate, many-nerved, pubescent, sheathing the base of the leafless flower-stalk, which is sometimes a foot high; flower solitary, large, subtended by a leaf-like bract; lip pink, petals and sepals brownish.



WILDLY beautiful, this plant is becoming alarmingly rare in settled neighborhoods. Like its cousin, the yellow lady's slipper, it is too shy a plant to thrive near the haunts of men. In the shades of primitive forests, in deep mountain ravines, where the traffic and turmoil of the world are as yet afar, it finds a fit setting for its wild grace and loveliness. Something in common has the moccasin-flower with the Indian who once shared its haunts—something of his spirit of freedom, all his love of exclusion.

On the score of beauty, few of our native plants may compare with this. The large flower, nodding at the summit of its stalk, its rose-pink lip, veined with deeper red, is seen but once to be remembered always. The lip is not outstretched as in the yellow lady's slipper, but droops languidly on its stem. There is a cleft down the middle, for all the world as if it had been slit with a knife making it two-lipped lengthwise.

The pink moccasin-flower grows from Canada southward in the mountains to North Carolina. It flowers in May and June. The specific name, *acaule*, alludes to the apparently stemless habit of the plant. It would seem more appropriate to call this forest plant "moccasin-flower," than "lady's slipper."



— 13 —

CICHORIUM INTYBUS.

CHICORY OR SUCCORY.

JUNE.



— 14 —

CYPRIPEDIUM ACAULE.

STEMLESS LADY'S SLIPPER.

MAY.

PLATE 15.

WILD GINGER. ASARUM CANADENSE. (BIRTHWORT FAMILY.)

Perennial, pubescent; acaulescent, the leaf-stalks arising from a long, creeping, thickened rootstock; leaves long-petioled, broadly and deeply reniform, veiny, velvety-pubescent; flower on a long, slender peduncle in the axil of the lower leaf, apetalous; calyx brownish, three-lobed, the lobes spreading, acute.



ONE of our best-known wild flowers; odd looking little herb though it be, every country child is familiar with the "little brown jugs," and knows where to look for them. If we are not acquainted with the habit of the plant, we notice the handsome, dark green, velvety leaves, and wonder why no flowers appear. But if we know the secret, we scrape away the dried forest leaves about the roots. There, hidden carefully away, are the queer little flowers. What a strange habit! Most plants push their flowers up into the light, as if wishing to exhibit them, and engage admiration for their beauty. But the wild ginger coyly conceals its blossoms, and reveals them only to those who know where to look.

When found, the flowers are well worth the search. Apart from its oddity, the calyx is prettily formed and colored. The lobes are yellowish or light brown, spotted with brownish-purple and brown at the base. They spread out widely, so that the peculiar arrangement of the parts within may be seen at a glance.

The wild ginger is common in woods in the Northern States, and in the mountains southward. It flowers in April and May. The meaning of the name Asarum is obscure. Our plant is called wild ginger because of its spicy, aromatic rootstock, sometimes used in the healing art.

PLATE 16.

MONKEY FLOWER. MIMULUS RINGENS. (FIGWORT FAMILY.)

Perennial; stems erect or ascending from a thickened, creeping rootstock, smooth, four-angled, usually branching; leaves oblong-lanceolate, sessile, heart-shaped at base, acute, serrate; flowers on long axillary peduncles; corolla bilabiate, the throat closed by a palate, lilac or violet in color.



MONKEY-FLOWER is a well-known plant of marshes and ditches in midsummer, flowering up to the beginning of autumn. The showy blossoms range in color from a delicate lilac or even, occasionally, pure white, to a deep violet. There is a dash of yellow on the palate that contrasts well with the prevailing shades of purple and blue. The flowers are set off to advantage by the rather dark green leaves, making the effect of the whole plant highly attractive and ornamental.

The odd corolla justifies the name. It is two-lipped, the throat being almost closed by the palate. The look of the flower is by no means unlike that of the grinning face of a monkey. There is something intelligent, almost, one might fancy, an expression of mockery about it.

The species of mimulus, nearly all North American, are especially abundant in California and Oregon. The flowers are almost always beautiful, and afford every conceivable variety of color—yellows, reds, purples and what not. One yellow-flowered species of our Pacific Coast, *Mimulus luteus*, has been imported into Europe, and not uncommonly decks the brooksides of England.

Mimulus is the Latin for "a little buffoon"; *ringens* means "showing the teeth."



— 15 —
ASARUM CANADENSE.
 WILD GINGER.
 MAY.



— 16 --
MIMULUS RINGENS.
 MONKEY FLOWER.
 JULY—AUGUST.



— 17 —

PEDICULARIS CANADENSIS.

WOOD BETONY—LOUSEWORT.

MAY.



— 18 —

CAULOPHYLLUM THALICTROIDES.

BLUE COHOSH.

MAY.

PLATE 17.

WOOD BETONY OR LOUSEWORT. *PEDICULARIS CANADENSIS*. (FIGWORT FAMILY.)

Perennial; more or less hairy; stems several from a rather woody rootstock, erect, unbranched; leaves pinnatifid, the lower more deeply so; flowers in terminal, bracted spikes; corolla two-lipped, the upper lip curved, purple, the lower three-lobed, yellow.



IN music a discord can heighten harmony. In womanly beauty, features somewhat irregular can display a charm denied to outlines precisely balanced, or symmetrically chiseled. So is it with the flowers of the field and woodland. The eye delights in departures from the pattern, the type. The turtle-head is more interesting to us than a perfectly regular flower of the same color and general form could be.

The lousewort belongs to a family of irregular blossoms, itself one of the most fantastic of them. The dark purple upper lip shoots up some distance above the lower, then arches over. Near the summit are two small teeth, so that there is somewhat of resemblance to the head of a walrus. The lower lip, usually pale yellow, is much shorter and hangs down. Rarely the whole flower is of a rich sulphur-yellow.

Pedicularis canadensis grows in woods throughout the greater part of North America, flowering in spring and early summer. The name *Pedicularis* is exactly the equivalent of the English name. It is hard to see why so unsavory a title was given these pretty plants. In England a kind of *pedicularis* is known as "Red Rattle," because the seeds rattle about in the pods.

PLATE 18.

BLUE COHOSH. *CAULOPHYLLUM THALICTROIDES*. (BARBERRY FAMILY.)

Smooth, stem erect from a thick rootstock, bearing a large three-times-compound leaf and one or two smaller ones above, leaflets thin, more or less whitened beneath, usually two or three-lobed; flowers small paniced; petals purple or yellowish; fruit consisting of two berry-like seeds on thick stalks, blue with a whitish bloom.



HERE the rich leaf-mould is thick on the ground, in deep woods, the odd blue cohosh loves to make its home. The small greenish-yellow or occasionally purple flowers, opening in May, are not likely to attract attention. But the large leaves, like those of the meadow-rue, are sure to catch the eye. Then, toward the end of summer, when the leaves of the cohosh are already yellowing, its berries, or rather seeds, turn a deep blue color. They are one of the prettiest sights of the woods at that season; often the bright scarlet berries of ginseng and low dogwood bear them company.

In the Northern States one may encounter the blue cohosh almost anywhere. As we go southward, it must be sought for in the mountains. There is another name for the plant, not often heard now—"papoose-root." The thick rootstock was much esteemed by the Indian medicine man. Perhaps anxious squaws were wont to administer decoctions of it to fractious papooses, afflicted with those aches and ills which red children, as well as white, cannot escape. In some places the plant is still believed to possess medicinal virtues.



— 19 —

MALVA MOSCHATA.
MUSK-MALLOW.
AUGUST.

33373



— 20 —

TRIFOLIUM AGRARIUM.
HOP CLOVER.
JUNE—JULY.

PLATE 19.

MUSK-MALLOW. MALVA MOSCHATA. (MALLOW FAMILY.)

Perennial; stem one or two feet high, hairy or nearly smooth; leaves petioled, palmately divided, the divisions lobed or cleft; flowers large, in the axils of the upper leaves and crowded toward the summit of the stem; petals pink or whitish; stamens and pistils united into a column.



THE musk-mallow is European. In Great Britain it is a familiar object at waysides and in pastures. It has emigrated to North America and is now pretty well established in northern latitudes. Though a weed, it is not a hurtful one, and its pretty flowers entitle it to be thought well of by those who love to see the waste grounds decked with blossoms. The large rose-purple, pink or white petals, and the peculiar odor, suggestive of the perfume that gives it a name, distinguishes our plant among its less favored comrades, "tramps," as Burroughs calls the weeds. We are reminded of more highly-prized members of its family—the so-called althæa of the gardens, the showy abutilons and scarlet hibiscus so popular in conservatories, the marshmallow from whose gummy root choice confectionery is made, not to speak of the lovely callirrhoe and sidalceas of our western prairies.

The musk-mallow flowers in summer. Its musk-odor is not always to be detected. Two other European mallows, the round-leaved mallow or "cheeses" and the wood mallow, a plant with showy purple flowers often cultivated in old gardens, have become pretty well naturalized in America.

PLATE 20.

HOP CLOVER. TRIFOLIUM AGRARIUM. (PEA FAMILY.)

Stems erect or decumbent, branching from the base, smooth or slightly pubescent; leaves petioled, trifoliate, with prominent stipules; leaflets oblong, dentate, notched at apex; heads dense; flowers yellow, becoming brown and reflexed when old.



THIS true yellow is not the color we usually associate with the clovers. "Clover" is more likely to call up visions of rich meadows red or white with the banquet tables of humble and honey-bee. Nevertheless, three kinds of foreign clover with distinctly yellow flowers have made themselves at home with us.

The hop-clover, so called because of the resemblance its heads bear to hops, is the largest and showiest of these. Widespread and abundant in Europe and in Asia, it is small wonder that this flower of civilization should have reached our shores. In New England and southward to Virginia, the bright sulphur-yellow heads gladden field and roadside, the flowers coming out from early summer until frost. Nothing could be finer than the color-contrasts on these plants, offering as they do every shade from the fresh yellow of the newly-opened blossoms to the rich brown of their full maturity and ripeness.

With the hop-clover two other kinds are often found, the low yellow-clover, much like it in appearance, and the quaint little hare's-foot or rabbit's-foot clover. This has long, soft, grayish heads, doubtless suggesting the pretty name which has come to us with the plant from England. The flowers themselves are pink, but are very small. All three of these clovers are worthless as forage. But they are considerate and keep to poor land where they do small harm, and pay the farmer an ample rent in their simple beauty.



— 21 —

AGROSTEMMA GITHAGO—(LYCHNIS GITHAGO).

CORN-COCKLE.

JULY.



— 22 —

LOBELIA CARDINALIS.

CARDINAL FLOWER.

JULY.

PLATE 21.

CORN-COCKLE. AGROSTEMMA (LYCHNIS) GITHAGO. (PINK FAMILY.)

Annual; stem stout, erect, much branched, four angled, channeled, hirsute; leaves opposite with connate bases, linear-lanceolate, acute, rough and hairy; flowers solitary at the summit of the branches; calyx large, with linear lobes exceeding the corolla; petals five, crimson-purple.



HERE are two flowers that grow with the grain in the corn fields of Europe and mingle their bright colors with the glad some yellow of ripening wheat or barley. The rich scarlet of the poppy makes of the fields sheets of living flame. The crimson of the corn-cockles lends them a deeper but quite as pleasing hue. The less harmful poppy has come to America, but remains a foreigner. The cockle, sworn foe of the farmer, has usurped all the privileges of citizenship.

A handsomer plant than this same corn-cockle 'twould be hard to find on a summer day. The leaves are pale green with a tinge of blue, while the blossoms blend crimson and magenta into a most charming combination. But with all its beauty, the plant is a sore pest. Being mixed with grain, it has an excellent opportunity to spread over the whole country—an opportunity whereof it avails itself to the full. The seeds are black, and when mixed with wheat, mar in its flour the snowy purity for which the miller toils. It is well nigh impossible to oust the weed from a field of growing grain.

The agrostemma is nearly related to lychnis, of which several species have long been cultivated in our gardens.

PLATE 22.

CARDINAL FLOWER. LOBELIA CARDINALIS. (LOBELIA FAMILY.)

Three or four feet high, stem erect, grooved, smooth or slightly pubescent; leaves alternate, ovate-lanceolate, irregularly and rather coarsely dentate, acute at each end, on short petioles; flowers in a long, terminal raceme; corolla deep carmine, very irregular; stamens and pistils cohering. Perennial by off-sets.



HITTIER, one of the best and most observant of our nature-poets, has thus sung the cardinal flower :

"The red pennons of the cardinal flowers.
Hang motionless upon their upright stems."

Because its place is almost at the end of the floral procession which year by year takes its way through the fields, because, too, of its noble beauty, this is always a favorite among our wild flowers. Who does not feel a thrill of admiration as he approaches the margin of a streamlet and beholds it, erect and soldier-like in its uniform of deepest red, guarding the bank? No old world bog or brookside can boast such a defender. America excels in the floral beauty that thus speeds the parting year. What autumn wild flowers can Europe place beside our asters, golden-rods and gentians?

Vivid red is not a common hue among our flowers. The scarlet catch-fly and the cardinal flower, one at the beginning, the other at the end of summer, are almost alone in color. What odd blossoms has the cardinal flower! They are said to be fashioned for the visits of humming birds. That is why, we are told, the lip hangs down, for the humming-bird does not rest on the flower but poises herself on the wing while sipping nectar. Bees also visit the cardinal flower, but thieve the honey through a slit at the base of the blossom, and so shirk the toll they should pay in fertilization.



— 23 —
 AQUILEGIA CANADENSIS.
 COLUMBINE.
 MAY—JUNE.



— 24 —
 MEDEOLA VIRGINIANA.
 INDIAN CUCUMBER ROOT.
 JUNE.

PLATE 23.

COLUMBINE. *AQUILEGIA CANADENSIS*. (CROWFOOT FAMILY.)

Roots thickened, woody; stems clustered, branching, smooth; lower leaves on long petioles, twice or thrice compound, the upper nearly sessile, two or three lobed or entire; leaflets variously lobed or cleft, glaucous beneath; flowers at the ends of the branches, scarlet and yellow; sepals comparatively inconspicuous, petals prolonged behind into spurs. Perennial.



FOR wild grace, for untrammelled native beauty, no flower surpasses our columbine. Making its home on rugged cliffs, softening their gray harshness, it is a very Samaritan of flowers. Plants that spring from the fatness of rich, moist mould have nothing of the ethereal charm of this shy denizen of the crag. The columbine, striking root deep into narrow clefts and bidding defiance to the storm-king, awakes the glow of praise that pluck and courage kindle ever. There is something almost human about such plants.

"A wild-rose, a rock-loving columbine
Salve my worst wounds."

The blossoms of the columbine are fashioned in curious wise. The five cornucopia-like petals pointing backward, "horn of honey," "water-holders," as the name *Aquilegia* signifies, give a distinctive character to the plant. They are scarlet without, lined on the inner side with bright yellow. The foliage is pretty and delicate, harmonizing well with the graceful flowers.

Insects do not seem to be attracted to the store of sweets at the ends of the long spurs. "There is honey in the columbine," writes Burroughs, "but the bees do not get it. I wonder they have not learned to pierce its spurs from the outside, as they do with dicentra."

PLATE 24.

INDIAN CUCUMBER ROOT. *MEDEOLA VIRGINIANA*. (LILY FAMILY.)

Stem erect from a thickened rootstock, bearing loose wool but otherwise smooth; leaves in two whorls, the lower of seven to nine, the upper of three to five ovate-lanceolate, acute, net-veined leaves; flowers on reflexed pedicels in an umbel-like cluster subtended by the upper whorl; sepals greenish yellow, reflexed.



HERE is another characteristic plant of North America, a dweller in its western forests. Naught has it in common with Europe and her civilization. The Indian cucumber is a common plant of deep woods in the Eastern States. In the southern stretches of its home the greenish, insignificant flowers commence to open as early as May, while further north they are found blossoming late in summer. It is a remarkably well-built plant, a very pattern of symmetry. The leaves are in two clusters, one at the middle, one at the top of the stem where the cluster of flowers arises. An odd feature is the cottony down which occurs on the stem and leaves, seemingly quite loose. Doubtless this is a protection for the budding plant when it first peeps above the ground. Thence it is carried up with the stem as it grows. The rootstock is white, but the resemblance to a cucumber is not striking.

Because it was once supposed to have great medicinal powers, *Medeola* is named for Medea, the enchantress, whom Jason bore away from Colchis in his famous ship the *Argo*. It is a near relation of the beautiful *trilliums*, and belongs to a family that boasts many of our most handsome native and cultivated plants.

PLATE 25.

CAT-MINT. *NEPETA CATARIA*. (MINT FAMILY.)

Not seldom four feet high, stem stout, angled, hairy, often purple; leaves on conspicuous petioles, ovate, heart-shaped, coarsely and sharply dentate, hoary, pubescent beneath; flowers in axillary clusters, the uppermost forming an interrupted compound raceme; corolla two-lipped, whitish with red-purple spots.



EVERYONE is familiar with this homely plant that loves to establish itself near human dwellings, and is rarely found far from the haunts of men. It is one of the most domestic of weeds, which is quite proper, for is it not the special property of a useful domestic animal? Who can explain tabby's fondness for the cat-mint? Why does its odor tickle her fastidious taste, while that of nearly related plants fails to attract her attention? We do not know. But we do know that from time immemorial, catnip and the cat have been fast friends.

There are many weeds with ugly and uninviting exterior, yet holding secrets of rare beauty for those who deign to look closer. The cat-mint is one of these. It is not a handsome plant, perhaps, yet the small white purple-spotted flowers disclose much beauty when viewed through a pocket lens.

In a delightful little chapter on bees, John Burroughs shows the cat-mint in a new light—as a source of honey. “Among weeds, catnip is the great favorite (of bees). It lasts nearly the whole season and yields richly. It could, no doubt, be profitably cultivated in some localities, and catnip honey would be a novelty in the market. It would probably partake of the aromatic qualities of the plant from which it was derived.”

PLATE 26.

INDIAN TOBACCO. *LOBELIA INFLATA*. (LOBELIA FAMILY.)

Annual; stem erect, usually much branched, hairy as the whole plant is; leaves sessile, the upper clasping, ovate, dentate; flowers axillary, the uppermost forming bracted terminal racemes; calyx veiny, inflated, the tube closely investing the ovoid pod; corolla rather small, bluish-white.



SORRY reputation to give a plant! But thus old Erasmus Darwin, grandfather of the great Charles, describes a venomous West Indian species of lobelia in his quaint poem, “The Loves of the Plants”:

“And fell Lobelia's suffocating breath,
Loads the dark pinion of the gale with death.”

Although by no means so harmful as this, the Indian tobacco has certainly an ill reputation among plants. It possesses to a marked degree the narcotic properties shared by all the lobelias, and was once highly thought of as a drug. It has an unpleasant, bitter taste when chewed.

The Indian tobacco is cousin-german to our beautiful cardinal-flower, though the relationship might not be guessed at the first glance. Yet the small, pale blue blossoms of the one, and the showy, red flowers of the other, are built on one and the same plan. Another relative of our plant is the great blue lobelia that ornaments marshes and ditches in the fall. Some tropical species are extremely handsome, and are much prized in cultivation.

Lobelia was named in honor of De L'Obel, an old botanist of Flanders, whose works are curiosities of the literature of plants. The lobelia inflata is common over a great part of North America, flowering late in summer.



— 25 —
NEPETA CATARIA.
 CAT-MINT.
 JUNE—JULY.



— 26 —
LOBELIA INFLATA.
 INDIAN TOBACCO.
 JULY.

PLATE 27.

LIVE-FOREVER. SEDUM TELEPHIUM. (ORPINE FAMILY.)

Whole plant smooth and fleshy; stem erect, more or less branching, leafy; leaves sessile, oblong or ovate, obtuse, dentate; inflorescence cymose, dense, terminating the stem and branches; flowers showy, purple; petals five in number; stamens ten. Perennial.



WE have no native plant so nearly indestructible as garden orpine or live-forever, which our grandmothers nursed and for which they are cursed by many a farmer. The fat, tender, succulent door-yard stripling turned out to be a monster that would devour the earth. I have seen acres of meadow-land destroyed by it. The way to drown an amphibious animal is to never allow it to come to the surface to breathe, and this is the way to kill live-forever. It lives by its stalk and leaf, more than by its root, and if cropped or bruised as soon as it comes to the surface it will in time perish. It laughs the plough, the hoe, the cultivator to scorn, but grazing herds will eventually scotch it."

Mr. Burroughs is writing in an uncharitable vein unusual to him, when he thus describes the live-forever. It is rare for him to talk of the worst weeds without finding something worthy of admiration to show us. Has this, then, no redeeming trait? It is, at least, a pretty plant, with its purple flower-clusters. When kept in its proper sphere, it is by no means to be despised. It is a native of Europe and Siberia. With us it flowers in late summer.

PLATE 28.

BRANCHING WOOD-VIOLET, CANADA VIOLET. VIOLA CANADENSIS. (VIOLET FAMILY.)

Its stems erect or ascending from a rootstock, branching, sometimes two feet high, smooth, leafy; leaves broadly ovate, cordate, acute at apex, coarsely dentate-serrate, the lower on long petioles, the uppermost almost sessile, stipules conspicuous; flowers on slender, axillary peduncles; petals white, veined with blue.



FEW of our wild flowers hold a higher place in our affections than do the violets. Perhaps, as has been said, this is partly due to an hereditary fondness for the English violet, which possesses warm fragrance in addition to its other claims to admiration. One or two of our white violets have a slight perfume, but even the odorless kinds are beautiful. The common blue violet, the rich bird's foot, the small yellow violet—all are "passing fair."

"Blossoms newly born
Of the May and of the morn,"

one of our poets sings.

The Canada violet with its blue-veined white petals flushed with pink outside, is one of the most bewitching of its family. It is a tall violet, growing in deep, rich woods in the northerly zones of our country, and also in the mountains southward. It blooms from May until late in the summer. Like the bland violet it has sometimes a delicate odor. In this, as in most of the violets, the side petals are bearded. This serves as a resting-place for the bees that fertilize the flowers while exploring them for honey; the flower making a bid, as it were, for Master Bee's visits by offering him a seat to work at.



— 27 —

SEDUM TELEPHIUM.

LIVE-FOR-EVER.

AUGUST.



— 28 —

VIOLA CANADENSIS.

BRANCHING WOOD-VIOLET.

MAY.

PLATE 29.

PAINTED TRILLIUM. TRILLIUM ERYTHROCARPUM. (LILY FAMILY.)

Stem simple, erect from a short, thick, oblique rootstock, bearing a whorl of three leaves and a single flower; leaves short-petioled, broadly ovate, rounded at base, conspicuously pointed; flowers peduncled; sepals three, lanceolate, green; petals three, ovate-lanceolate, white or pale pink with darker markings at base.



EXCEPT for three or four species native to the Himalayas and Japan, the trilliums or wake-robins belong to North America. Few choicer flowers adorn our forests. They are odd plants, with the whorl of three leaves and the single large flower. Sometimes the flower is stalked, sometimes not.

The painted trillium is the most delicately beautiful of them all. The dark green leaves set off to great advantage the white or pale-pink petals, exquisitely penciled with deep wine-color. It is a shy plant, confining itself to cold moist woods and bogs. It occurs in the Northeastern States and southward on the high peaks of the Blue Ridge and the Alleghenies to Georgia. It is also found sparingly as far west as Missouri. The flowers open in April and May.

The trilliums are rarely fragrant. One kind, the erect trillium or bath-flower has a decidedly unpleasant, almost fetid odor. But there is a form of the sessile trillium in the Southern States which has lemon-colored, deliciously fragrant petals. There is one curious thing about the trilliums. The petals are very apt to turn into foliage leaves, especially in rainy weather. This supports the theory that petals were originally leaves.

PLATE 30.

INDIAN TURNIP. ARISÆMA TRIPHYLLUM. (ARUM FAMILY.)

Corm thick and round, stem erect, the base enveloped in sheathing scales, bearing one or two foliage leaves; leaves long petioled, consisting of three ovate-oblong, pointed leaflets; flowers borne in a peculiar, spike-like inflorescence, the spadix, protected by a greenish or purplish, hood-shaped floral leaf, the spathe. Perennial.



SPRING is well within its threshold when we meet the preacher in our woodland rambles. How quaint he is in his high canopied pulpit! The bell-flower tolls to church. The sermon begins, we would like to understand what it is about. Surely the text must be love and beauty, for what else could the woodland pastor discourse on in the glad May-time?

The preacher-in-the-pulpit or Indian turnip belongs to a group of plants that comprises some of our finest and most interesting flowers—the golden club, the skunk-cabbage and the shy calla. Here, too, we find the showier Egyptian calla of the greenhouses. But our own “preacher” has a certain rustic grace about him that yields the palm to no exotic. What could be daintier than the curl of the green or purple and striped and mottled flower-leaf that shelters so cozily the spike of flowers within? In the fall, when the flowers have become a cluster of bright red berries, it is still a striking plant.

The corm is somewhat like a turnip in shape, hence one of the names. In May or June the plant may be met with in almost every fertile wood from Maine to Florida and westward beyond the Mississippi.



— 29 —

TRILLIUM ERYTHROCARPUM.
PAINTED TRILLIUM.
MAY—JUNE.



— 30 —

ARISÆMA TRIPHYLLUM.
INDIAN TURNIP.
MAY.

PLATE 31.

HAREBELL. *CAMPANULA ROTUNDIFOLIA*. (BELL-FLOWER FAMILY.)

Stems usually clustered from a creeping rootstock, simple or branching, smooth; root leaves rounded, often heart-shaped, on slender petioles; stem leaves linear, the upper very narrow; flowers few on rather long stalks; calyx-lobes very narrow; corolla blue, campanulate. Perennial.



RACEFUL and fragile, divinely fair, is the harebell. Its flowers are of brightest, purest blue, like a summer sky new-washed by a thunder-shower. Few wild flowers have been more praised and loved by bards than this. It has all the sweet innocence, the heaven-born modesty, of the daisy, "wee crimson-tippit flower," and it has a supple grace that the daisy lacks. A field pink-starred with daisies is a pretty sight, but the bank "where swing the azure bells" is fairer still.

The harebell is native in the northern or more elevated central parts of Europe, Asia and North America, circling the northern pole. It has the true bright but delicate beauty of a flower of cold climates. With us it extends across the continent, confined to the Northern States in the East, but going far southward along the Rockies. It is a shy plant here, but in England ventures out into pastures and roadsides, not having to fear the scorching heat of the American summer. The dainty bells open here in June and July. The style protrudes from the flower like a miniature clapper.

The *campanula divaricata*, which grows on cliffs in the mountains of Virginia, Kentucky and Tennessee, has smaller flowers than the harebell, and they are more truly bell-shaped.

PLATE 32.

SPOTTED TOUCH-ME-NOT. *IMPATIENS BIFLORA* (FULVA). (BALSAM FAMILY.)

Annual; stem smooth, fleshy, much branched; leaves petioled, oblong-ovate or ovate, crenate, glaucous; flowers of two sorts, one kind small and never opening (clitogamous), but producing seed; the other large and showy, usually sterile, having four sepals, one of them enlarged into a spurred sac, and two small petals.



WANDERING along the shaded bank of a brook in the evening or in the early morning, we come upon a strange plant with the edges of its leaves all hung with dewdrops as with gems of purest water. This is the jewel-weed or touch-me-not. Its flowers are beautiful and very odd. One of the sepals is enlarged into a sac something like the lip of the moccasin-flower. This ends in a spur that is curved on itself, like the tail of a monkey. The flower looks curiously alert, as if it were on the point of flying. The color is a rich orange, spotted with brownish-red. It is not these large showy blossoms that usually produce seed. That is left to small flowers like buds, that never open. The seed-pods are so constructed that, when ripe, a slight touch

will cause them to burst with force, scattering the seed to quite a distance. Hence the name "touch-me-not," or "noli-me-tangere." The French call the plant "n'y touchez pas."

Our spotted touch-me-not is beginning to grow wild along streams in southern England, so we are making some return for the many plants we have received from the old world. This flower is entirely dependent on the humming-bird and on an occasional insect for fertilization, for the pollen falls before the stigma is ready to receive it.



— 31 —

CAMPANULA ROTUNDIFOLIA.
HAREBELL.
JUNE—JULY.



— 32 —

IMPATIENS BIFLORA—(IMPATIENS FULVA).
SPOTTED TOUCH-ME-NOT.
JUNE.



— 33 —
 ASTER PUNICEUS.
 PURPLE ASTER.
 AUG.—SEPT.



— 34 —
 BRASSICA NIGRA
 BLACK MUSTARD.
 JUNE.

PLATE 33.

PURPLE ASTER. ASTER PUNICEUS. (SUNFLOWER FAMILY.)

Stem tall, usually four to six feet high, much branched, hairy, sometimes purple, leaves rather long, broadly lanceolate, auricled and clasping at base, acute, sparingly serrate; heads rather large, arranged on the branches of the stem so as to form a large panicle; rays lilac. Perennial.



N those sad, sweet days when the reluctant earth lingers in the warm embrace of summer, loath to enter her frosty prison house, when

“The maples redden in the sun,
In autumn gold the beeches stand,”—

then the “broad-headed asters” blow in wood and field. How fair they are, these late flowers. What exquisite tints their rays reveal. White and palest azure, delicate lavender, amethystine blue, violet, rich purple—a glorious company they are, the asters.

As handsome and showy as any is *Aster puniceus*. A meadow where

“The golden rod is leaning,
And the purple aster waves,”—

is truly a noble sight. Bright yellow golden rod, rich purple aster, crown and royal robe of the queen-time of the year. It is fit that such colors should deck the earth in the autumn season, when the apple trees bend beneath their load of ruddy fruit and the corn yellows in its generous ripeness. Ah, sad though the autumn be it is yet a joyous season! A rich pleasure it is to walk afield, to breathe the pure, fragrant air, to crunch the dry leaves under foot, to view the thousand tints of spiring flame and gold around us, and to see the merry asters nodding from copse and roadside.

PLATE 34.

BLACK MUSTARD. BRASSICA NIGRA. (CRESS FAMILY.)

Stem smooth, erect, much branched, two to four feet high; leaves pinnately divided, the terminal division much the largest, variously lobed and toothed; flowers disposed in racemes on the branches, small, petals four, sulphur-yellow in color; stamens six, two of them longer.



O the cress family we are indebted for many of our most prized vegetables. The cabbage, the cauliflower, the turnip are of this alliance. Here, too, belong those crisp, biting herbs that are such delightful relishes for the table—the radish, horse-radish, mustard and cress. It is to the acrid, essential oil which pervades these plants that their delicious pungency is due. Perhaps no other family, except the roses, peas and grasses, are so useful to us.

Mustard has long been used in medicine and as a table condiment. But it was not until the eighteenth century that the idea of grinding the seeds and mixing the powder with water was first conceived. The inventor of the new palate-tickler was an Englishwoman. Her preparation was submitted to that lover of good things, George I. His Majesty tasted and approved. Thus was the popularity of mustard as a table article ensured. The black mustard, *brassica nigra*, is the best sort, but is comparatively rare and expensive. The seeds of the white mustard, *brassica alba*, are usually mixed with it. In Palestine the black mustard attains a great height; to this the Master alluded when he spoke the parable of the mustard seed.



— 35 —

POTENTILLA CANADENSIS.

FIVE-FINGER

MAY.



— 36 —

DAPHNE MEZEREUM.

MEZEREUM.

MAY.

PLATE 35.

FIVE-FINGER. *POTENTILLA CANADENSIS*. (ROSE FAMILY.)

Hairy stems decumbent, sending out runners later in the season; leaves ternate, but with the lateral leaflets divided so as to give the appearance of five leaflets, petioled; leaflets ovate or obovate, coarsely toothed; flowers on slender axillary peduncles; petals five, pale yellow. Perennial.



FLOWERS are oft cherished not only for their intrinsic beauty, but for their power to recall the golden moments of life. Have lovers' hands never been unclasped to gather flowers just as beautiful as the anemone, the spring-beauty, and the violet? So it would seem, for there is in every field a witchery which has no recorded spell among all the tributes of the poets.

"There is no glory in star or blossom
Till looked upon by a loving eye."

No loving eye has fallen upon the modest little five-finger; its beauty is unpraised.

Many a stony field owes much to the five-finger. Kindly and with pity the bright little cups of gold and the strawberry-like leaves cover and conceal the barren ugliness of ground which prouder flowers would scorn to shade. Like the lichens and hepatics that hide the gray rock-surfaces 'neath a mantle of green and purple, red and brown, the mission of the five-finger is to protect and adorn. It is the spirit of sweet charity embodied.

The five-finger or cinquefoil is of a goodly family. The fair rose, the luscious cherry, the fragrant strawberry are its kinsfolk. Though our modest flower has neither scent nor tempting fruit, Nature has given a tender beauty to its blossoms. The plant is common throughout most of eastern North America, flowering from early spring to midsummer.

PLATE 36.

MEZEREUM. *DAPHNE MEZEREUM*. (MEZEREUM FAMILY.)

A small branching shrub; leaves thick, oblong-lanceolate, smooth; flowers clustered, appearing with or before the leaves; petals none; calyx purplish-pink, salver-shaped, four-lobed; stamens eight in number, borne on the calyx-tube; stigma capitate, sessile or nearly so; flowers succeeded by red berries.



WHEN time was young and gods and goddesses came to earth in search of human loves, Apollo wooed the water-nymph, Daphne. Most beautiful of the nymphs was Daphne, daughter of Gaea, the spirit of the earth. But the passion of the god awoke no response within her breast, she fled from his advances. At last, to escape his too ardent pursuit, she transformed herself into a laurel bush. Thus her name has become that of the laurel-like mezereum. Our Daphne is not so unkind to the sun-god. In earliest spring she welcomes his kisses with a rosy blush.

To lay aside the allegory, Daphne Mezereum, like two of our native shrubs of an allied family, spice-bush and sassafras, flowers before the leaves are developed. These precocious flowers have an odd appearance as they appear on the almost naked branches, whilst the leaves are still in the bud or just opening. The mezereum is a handsome shrub, whether we judge it by the rose-purple flowers, by the shiny green leaves or by the pretty red berries.

The mezereum, like the laurel, is a native of Southern Europe. It has long been cultivated in gardens and has escaped here and there in the Eastern part of our country, especially in regions near the sea coast. Its nearest ally among our native plants is the tough-barked moosewood.



— 37 —

VERONICA SERPYLLIFOLIA.

THYME-LEAVED SPEEDWELL.

MAY.



— 38 —

HYOSCYAMUS NIGER.

BLACK HENBANE.

MAY—JUNE.

PLATE 37.

THYME-LEAVED SPEEDWELL. VERONICA SERPYLLIFOLIA. (FIGWORT FAMILY.)

Glabrous or nearly so; stems creeping, branching; leaves opposite, ovate or elliptical, short-petioled, rather minutely toothed, the upper reduced to bracts; flowers in the axils of the uppermost leaves, forming a terminal raceme; corolla salver-shaped, pale blue; pod inversely heart-shaped. Perennial.



THE speedwells have been looked upon as flowers of good fortune. As the name indicates, to present the parting guest with a sprig of speedwell was to ensure him safety and success in his journeyings.

The Latin name of the genus is traced to a pretty legend. When Jesus, the cross on his shoulder, was approaching the place of crucifixion, a maiden pitied his sufferings and gave him her handkerchief. The Saviour wiped the sweat and blood from his face with it; and lo, a perfect impression of his countenance appeared on the cloth! Ever since the true likeness (vera iconica) has been preserved at St. Peter's and is revered as possessing marvelous healing power. The maid was canonized and is known as St. Veronica. Some of the speedwells were formerly valued as remedies, hence the application of the name to them.

When

"The May sun sheds an amber light
On new-leaved woods and lawns between,"

then, at grassy roadside and on mossy bank look for the sky-blue spikes of the thyme-leaved speedwell. Creeping among the grass blades, almost hidden from sight, modest and retiring, is this little flower. One must look closely or the tiny blossoms will elude the eye.

PLATE 38.

BLACK HENBANE. HYOSCYAMUS NIGER. (NIGHTSHADE FAMILY.)

Leafy; whole plant viscid-pubescent; stem erect, one or two feet high, round leaves, large, with clasping bases, ovate or oblong, coarsely toothed; flowers large, sessile in the axils of the leaves, forming somewhat unilateral, terminal racemes; corolla funnel-shaped yellowish with dark veins.



ABOUT old buildings and in waste grounds a curious, ill-smelling weed is sometimes met with—the henbane. The plant itself is coarse, but the large, funnel-shaped flowers are rather handsome. They are of a pale yellow, beautifully veined with dark purple. Nevertheless the weed has a suspicious look, the very coloring of the blossoms reminding us of that of venomous serpents. Appearances are not deceptive in this case. The henbane contains a highly poisonous principle, hyoscyamine. It is especially fatal to fowls that eat the seeds, hence the popular name. Hyoscyamus is from two Greek words signifying "hog's beans," for hogs are said to eat the plant with impunity.

Hyoscyamus has been much used in medicine. In excess it causes loss of speech and distortion. Wisely prescribed it is of high value. Quoth quaint George Herbert:

"The herbs do gladly heal our flesh
Because that they find their acquaintance there."

The plant was esteemed as a drug in very ancient times. It is a native of Europe, and has become naturalized here.

The henbane is related to some of our most useful vegetables and to some of our deadliest poisons. The potato, tomato and egg-plant are its relatives, as well as the black nightshade, the stramonium and atropa belladonna. In which category, of banes or blessings, to place the tobacco plant is a matter of individual taste.



— 39 —

CENOTHERA BIENNIS.
EVENING PRIMROSE.
JULY.



— 40 —

LYCOPSIS ARVENSIS.
SMALL BUGLOSS.
JULY.

PLATE 39.

EVENING-PRIMROSE. OENOTHERA BIENNIS. (EVENING-PRIMROSE FAMILY.)

Biennial, more or less hairy; stem erect, usually three to five feet high; leaves oblong-lanceolate, the lower four or five inches long, short-petioled, dentate; flowers large, in long terminal racemes; petals four, yellow, with the calyx-limb borne on the summit of the ovary.



Y the setting sun the western sky is crimsoned. The birds fly homeward. The hum of the bee gives place to the shrill note of the "Katy-did."

"One by one the flowers close,
Lily and dewy rose,
Shutting their tender petals from the moon."

But look! This homely wayside weed which showed to the bright sun only unopened buds or withered flowers is undergoing a transformation. The buds expand into large, pale yellow flowers, exhaling a delicious perfume. Wondrous instinct, this of

"The flowers that blow when the heat of the day is o'er."

Why do some flowers open at evening while their neighbors love the broad day-light? We cannot tell, any more than we can account for the night-loving habits of owl or whippoorwill. It may be that the *oenothera* has chosen the night time that it may be fertilized by night-flying insects. Perhaps the whippoorwill has acquired nocturnal habits in order to feed on such insects!

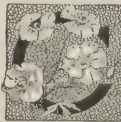
Night flowering is not an uncommon habit with tropical plants. The lovely "night-blooming cereus" of conservatories, the familiar moon-flower are nocturnal bloomers. Northern flowers more rarely open by night. Possibly in cool climates where there is no tropical superabundance of vegetation, all plants have a better chance of fertilization in the daytime.

PLATE 40.

SMALL BUGLOSS. LYCOPSIS ARVENSIS. (BORAGE FAMILY.)

Whole plant covered with rough hairs; stem branching, six to eighteen inches high; leaves oblong, the lower petioled, the upper clasping, coarsely toothed; flowers in terminal, bracted racemes; calyx conspicuous; corolla small, funnel-shaped with a curved tube, blue; nutlets four, wrinkled.

"There poppies, nodding, mock the hope of toil;
There the blue bugloss paints the sterile soil."



RABBE classes the bugloss with the poppy as an injurious field-weed. So it is in England and Europe generally. It is making its appearance in waste ground and near dwellings here, but is hardly enough at home yet to have become a dangerous weed.

Though the stem and leaves are coarse and covered with rough hairs, the flowers redeem the *lycopsis* from the charge of ugliness. They are bright blue with red stamens, forming a very pretty combination. When growing in large numbers the effect of the plants in flower is quite striking. The name "bugloss" is applied to several related plants. The *lycopsis* is properly "small bugloss." The "viper's bugloss" or "blue weed" (*Echium*), is naturalized in the Eastern States, especially in Virginia. It has blue flowers like those of the small bugloss, but considerably larger. The borage family, to which these plants belong, is composed chiefly of coarse, rough, hairy weeds. A notable exception is the beautiful Virginia lungwort or bluebells (*Mertensia*) which is quite smooth.

PLATE 41.

TRAILING ARBUTUS, MAYFLOWER. *EPIGÆA REPENS*. (HEATH FAMILY.)

Stems creeping, covered with long, reddish hairs; sufruticose; leaves petioled, alternate, ovate, heart-shaped, thick, evergreen; flowers in dense clusters; corolla pink, funnel-shaped, much exceeding the calyx, hairy in the throat; flowers of two kinds, one with short style and long filaments, the other with long style and short filaments.

"O sacred flowers of faith and hope,
As sweetly now as then,
Ye bloom on many a birchen slope,
In many a pine-dark glen."—WHITTIER, "*The Mayflowers*."



AFTER the Puritans landed on the bleak New England coast they passed through a terribly severe winter. The first sign of returning life and hope was the appearance in the Plymouth woods of the sweet blossom, which they christened the "Mayflower," in fond remembrance of the ship that bore them to the new world, of the bloom that gladdens the hedges of old England in the fairest of the months. Since then the "matchless, rose-lipped, honey-hearted trailing arbutus" has had a never failing significance to the pilgrims and their descendants,—emblem of their struggle and their hope.

"Puritan flowers are the type of Puritan maidens,
Modest, and simple, and sweet,"

writes Longfellow.

In the first rare days of spring, on the wooded hillside, where the first faint rays of the sun have warmed the frozen soil into life, we find the "pale pink flowers," almost hidden beneath their leaves. What a delicious fragrance they exhale; what a subtle, indescribable fragrance! Truly this is the choicest of our wild flowers.

PLATE 42.

BLADDER CAMPION. *SILENE VULGARIS (INFLATA)*. (PINK FAMILY.)

Perennial; stems smooth, branching from near the base; leaves opposite, sessile, ovate-lanceolate, acute, thickish, with a prominent midrib, the uppermost reduced to scale-like bracts; flowers in panicled cymes; calyx large, inflated, net-veined, often purplish; petals five, very delicate, white.



PURTTY is this plant that has come to us from Europe, and has become well naturalized in easterly regions. It is often met with at roadsides and in fields, and may be easily recognized by the curious inflated calyx. On this account it is sometimes called "cow-bell" with us, while in England it is known as "white bottle." The name, "Bladder Campion," refers to the same characteristic, campion meaning, "growing in fields." The calyx is further remarkable for its exquisite veining. The petals are pure white and very delicate, fading quickly. Shelley's line,

"Flowers that die almost before they sicken,"

would aptly describe them.

The genus *Silene* contains many handsome species. Of our native kinds, we might mention the Pennsylvania catchfly, which has large pink flowers, delicately fringed. The scarlet catchfly has blossoms of a flaming red. Those of the royal catchfly (*silene regia*) are of the same color.

Silene is named for Silenus, a god of Bacchus' train, whom the Greeks represented as an old gentleman, in a highly intoxicated condition. Many of the species are quite viscid. *Silene antirrhina*, a small-flowered, night-blooming species of dry fields, has dark colored, sticky bands between the joints of the stem.



— 41 —
EPIGÆA REPENS.
 TRAILING ARBUTUS.
 MAY.



— 42 —
SILENE VULGARIS (INFLATA).
 BLADDER CAMPION.
 JUNE.

PLATE 43.

FIELD IRIS, ROAST BEEF PLANT. IRIS FOETIDISSIMA. (IRIS FAMILY.)

Stem erect, creeping rootstock, one or two feet high, leafy; root-leaves much longer than the cauline ones, ensiform, very acute; flowers on short peduncles at the summit of the stem; sepals purple, longer than the petals. Perennial.

"Blue flags, yellow flags, flags all freckled,
Which will you take? Yellow, blue, speckled!
Take which you will, speckled, blue, yellow,
Each in its way has not a fellow."—CHRISTINA ROSSETTI.



HE flags have always been favorites with the poets. In Europe there are so many beautiful kinds and they grow in such abundance that it would be strange if they did not attract lovers of Nature. Shelley, whose descriptions of plants are always appropriate, who had a wonderful faculty for humanizing and bringing near to us the flowers, loved to sing of

"Broad flag-flowers, purple, pranked with white."

Emerson, who may be ranked with Bryant and Whittier in his knowledge of wild-flowers and in the beauty of his descriptions of them, alludes to the flags that border the lakes in the Adirondacks:

"Files of flags that gleamed like bayonets."

Iris foetidissima is a European species that has become sparingly naturalized here and there in the North, having escaped from cultivation in gardens. It is a common wood-plant in southwestern England. The people call it "Roast-beef Plant" because its odor is supposed to resemble that of the viand so beloved of John Bull.

PLATE 44.

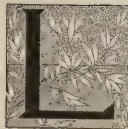
CELANDINE. CHELIDONIUM MAJUS. (POPPY FAMILY.)

A perennial, somewhat glaucous; stems erect, much branched, fragile, containing a yellow juice; leaves large, pinnately parted or divided, segments coarsely toothed or lobed; flowers umbellate on a long peduncle, rather small; sepals two, small; petals four, much larger, yellow; stamens numerous.

"There's a flower that shall be mine,
'Tis the little Celandine.

Modest, yet withal an elf,
Bold, and lavish of thyself;

Since we needs must first have met
I have seen thee high and low,
Thirty years or more, and yet
'Twas a face I did not know;
Thou hast now, go where I may,
Fifty greetings in a day."—WORDSWORTH.



KE the bloodroot, its brittle stems contain an orange-colored juice, so that the plant seems to bleed when wounded. According to Wordsworth the flowers are favorites with the bees. In England it blossoms much earlier than with us, hence the name Chelidonium from the Greek for "swallow," because the flowers appear with the swallow.

Delicate as is this little European, it is thoroughly at home in Eastern North America. We need not regret its introduction. It is a harmless weed, and the flowers are quite pretty. It is often to be met with in waste ground and hedge-rows.

"Thou dost show thy pleasant face
On the moor and in the wood,
In the lane, there's not a place,

Howsoever mean it be,
But 'tis good enough for thee,"

wrote the Lake Poet who loved the celandine and studied its habits.

Chelidonium is a near relative of the poppy, the beautiful Californian Eschscholtzia, and of our bloodroot.



— 43 —

IRIS FOETIDISSIMA.

FIELD IRIS.

JUNE—JULY.



— 44 —

CHELIDONIUM MAJUS.

CELANDINE.

MAY.

PLATE 45.

BINDWEED. VOLVULUS CALYSTEGIA SPITHAMÆUS. (CONVOLVULUS FAMILY.)

Very leafy, stem erect, six to eighteen inches high, pubescent; leaves alternate, petioled, ovate, mucronate, usually truncate, sometimes heartshaped, and unequal at base; flowers on long axillary peduncles, with two large bracts surrounding the calyx; corolla open campanulate, white.

"White cups whose wine
Was the bright dew yet drained not by the day."—SHELLEY.



UCH are the flowers of this pretty convolvulus, pure white chalices, open to the sun, closing toward nightfall and in cloudy weather. This bindweed is a not uncommon plant of dry, upland fields, blossoming in summer. Its erect habit distinguishes it from most of the species of volvulus, which are climbers, as both the Latin and the English names indicate.

A well known species is the volvulus arvensis, a common European corn-field weed. It is widely naturalized in eastern North America and is becoming a great nuisance to farmers. The creeping stems form dense mats on the ground. The plant manifests a "dog in the manger" inclination to crowd out everything else. One of these plants was placed by Linnæus in his famous "floral clock," its flowers opening at two and closing at eleven in the morning. Like the scarlet pimpernel, the species of volvulus are supposed to forecast the approach of rain by the closing of the blossoms.

"Blithe-hearted or sad, as the cloud or the sun subsided."

Some species of volvulus are very popular in cultivation; but the plants usually known in gardens as "convolvulus" are ipomæas. The common morning-glory is ipomæa purpurea. The cypress-vine is ipomæa quamoclit.

PLATE 46.

BELLFLOWER. CAMPANULA RAPUNCULOIDES. (BELLFLOWER FAMILY.)

Perennial; stem tall, erect, slightly puberulent, often purplish; leaves alternate, on short, winged petioles, the upper nearly sessile, broadly ovate, cuneate at base, irregularly toothed, veiny, thin; flowers in the axils of the bract-like upper leaves, forming a compound raceme; corolla large, campanulate, deep blue.

"Tender bluebells at whose birth
The sod scarce heaved."—SHELLEY.
"How the merry bluebells ring."—TENNYSON.



HIS is one of the showiest of the bluebells. It is a native of Europe and Siberia, brought to this country and cultivated in old fashioned gardens. Here and there it has escaped into roadsides and wandered as far south as Pennsylvania. It flowers in summer. Two other species of campanula are frequent in gardens, campanula glomerata which has run wild in Massachusetts and other Eastern States; campanula medium, a native of Germany, long known in English gardens by the pretty name of "Canterbury Bells."

In the "language of flowers," the bluebell is a token of constancy. We might almost fancy such a quality in its tender blue.

The bellflower family is almost confined to temperate regions. These plants are especially abundant in the North Temperate Zone and in South Africa. They are not remarkable for any peculiar properties, medicinal or other. Their beauty seems their sole excuse for being. Besides the bluebells themselves, the beautiful wahlenbergias and the pretty little "Venus' looking glass" belong to this family.



— 45 —

VOLVULUS (CONVOLVULUS) SPITHAMÆUS.

BINDWEED.

JUNE.



— 46 —

CAMPANULA RAPUNCULOIDES.

BELLFLOWER.

JUNE

PLATE 47.

WINTERGREEN. PYROLA SECUNDA. (WINTERGREEN FAMILY.)

Stem erect from slender, rather woody, subterranean rootstocks; foliage leaves round-ovate, closely serrate, petioled, clustered toward the base of the stem, bearing a terminal, one-sided raceme of flowers; calyx small; petals five, greenish white.



OUR wintergreens are among the most interesting of our wild flowers. They were formerly considered as belonging to the great heath family, which contains so many of our beautiful native plants. But they are now usually placed in a small family by themselves. They are quite handsome little plants, with their cluster of thick, shining green leaves and their white or greenish blossoms. In *pyrola secunda* the raceme or cluster of flowers is oddly one-sided. This species is quite widely distributed in Europe and in Northern Asia as well as in North America. Here, it is found, secluding itself in deep woods.

It is not from these plants that the fragrant oil used in flavoring confectionery and for other purposes is obtained. The checkerberry or false wintergreen is the source of the "oil of wintergreen." The name *pyrola* means "a little pear." The thick shining leaves somewhat resembling those of the pear tree. The common name refers to the evergreen foliage. We have several kinds of wintergreen in North America. One of the most common is the "shin-leaf" (*pyrola elliptica*), the leaves of which are supposed to heal hurts and bruises, hence the common name. Whether its curative powers are confined to the member indicated or not, is an unsettled point in medicine.

PLATE 48.

LIVERLEAF. HEPATICA ACUTA (AUCTILOBA). (CROWFOOT FAMILY.)

Acaulescent, soft-hairy, roots fibrous, clustered, from a short rootstock; leaves on long petioles, reniform, three-lobed, lobes acutish; flowers long peduncled, subtended by a three-leaved involucre simulating a calyx; petals none; sepals petal-like, pink, lavender or blue, sometimes white, usually eight or ten in number; stamens and pistils numerous. Perennial.

"The squirrel-cups,* a graceful company,
Hide in their bells, a soft aerial blue—
Sweet flowers that nestle in the humblest nooks,
And yet within whose smallest bud is wrapped
A world of promise!"—BRYANT.



FOLLOWING fast in the footsteps of the skunk-cabbage and the trailing-arbutus, indeed often preceding the latter, comes the dainty liverleaf. In March, or even, in southern latitudes, in February, the buds, "wrapped in bud-coats hairy and neat," peep out of the ground at the first summons of the spring sunshine. We have two sorts of *hepatica*, the round-leaved and the acute-leaved. The former has flowers of every shade of blue, from almost white to the deep color of a tropical sky. The latter has flowers of a delicate pink or lilac. Which is the prettier, 'twould be difficult to say. The round-leaved species is native also in Europe. Both kinds are widely distributed in eastern North America, the *hepatica acuta* preferring mountain regions. In re-

gard to the odor of the *hepatica*, Mr. Burroughs writes: "There are individual *hepaticas*, or individual families among them, that are sweet-scented. The gift seems as capricious as the gift of genius in families. You cannot tell which the fragrant ones are till you try them."

* Another name for the *hepatica*.



— 47 —

PYROLA SECUNDA.
WINTERGREEN.
JUNE



— 48 —

HEPATICA ACUTA (ACUTILOBA).
LIVERLEAF.
MAY.



— 49 —

SHEEP LAUREL.
KALMIA ANGUSTIFOLIA.
JUNE.



— 50 —

EARLY WILD ROSE.
ROSA BLANDA.
JUNE.

PLATE 49.

SHEEP LAUREL. *KALMIA ANGUSTIFOLIA*. (HEATH FAMILY.)

Small branching shrub, one to three feet high; bark gray; leaves elliptical or oblong-ovate, entire, thickish, green above, glaucous beneath, mid-rib prominent; flowers in corymb-like clusters, the young leafy shoots growing beyond them, making them lateral; corolla short-campanulate, five-lobed.

"How beautiful the solid cylinders of the lamb-kill, now just before sunset, small, ten-sided, rosy-crimson basins."—THOREAU.



F all our wild flowers, the *Kalmias* are perhaps the most characteristic. These noble shrubs with their magnificent clusters of pink-flowers and the shining, laurel-like leaves, are the crowning glory of our forests. Neither English rose nor French lily can vie with the *Kalmia* in majestic beauty.

The sheep-laurel is less stately than *Kalmia latifolia*, but is quite as handsome. The dark evergreen foliage is a fine setting to the mass of blushing flowers. In spring, when the light green of the young shoots is mingled with the deep color of the old leaves, the contrast is charming. The sheep-laurel, like the American-laurel or calico-bush, is supposed to be poisonous to cattle and sheep, hence the name sheep-laurel, or lamb-kill, as it is sometimes called. In spring, when there is nothing else to serve as pasture, the young shoots of the *Kalmia* are devoured often, it is said, with fatal results. The sheep-laurel flowers in May and June. All the *kalmias* are North American or West Indian.

PLATE 50.

EARLY WILD ROSE. *ROSA BLANDA*. (ROSE FAMILY.)

Shrub, one to three feet high, much branched; stems sometimes bearing small prickles, usually without; leaves pinnate with five or seven leaflets, which are oblong or obovate, sharply serrate, obtuse; stipules large; flowers solitary or in leafy corymbs, petals pink.

"A rose embowered
In its own green leaves
By warm winds deflowered,
Till the scent it gives
Makes faint with too much sweet these heavy winged thieves."—SHELLEY.



HAT flower is so universally loved and admired as the rose! It is nearer to us than any other. In olden times it was held sacred. The Greeks and Romans never omitted it as the crowning ornament of their feasts. One Roman emperor astonished his guests by showering rose leaves upon them from the ceiling of his banquet hall. The English early took it as their national flower. The classic poets never wearied of singing the praises of the rose. In the lays of the troubadours, rose and nightingale were ever united in the songs addressed to fair women. Every English bard, from Chaucer to Swinburne, has lauded "the queen of flowers."

But the rose, whether we think of it as the gorgeous "La France" or "Perle de Jardin," products of centuries of cultivation, or as the wild, sweet hedge-flower, cannot be over-praised. Our own native roses are unrivalled in the world. Their blossoms, with long fallen and the summer is waning,

"Scarlet berries tell where bloomed the sweet wild rose."



— 51 —
FRINGED LOOSESTRIFE.
STEIRONEMA CILIATUM.
JULY.



— 52 —
GREAT WILLOW-HERB.
EPILOBIUM ANGUSTIFOLIUM.
AUGUST.

PLATE 51.

FRINGED LOOSESTRIFE. STEIRONEMA CILIATUM. (PRIMROSE FAMILY.)

Perennial; stem erect from a creeping rootstock, angled, channeled; leaves opposite on long, ciliate petioles, ovate, very acute at the apex, thin, winy; flowers on slender, axillary peduncles; calyx five-parted; corolla bright yellow, wheel shaped, five-parted; stamens five, with five other rudiments between them.

"The flowers that love the running stream,
Iris and orchis and the cardinal flower."



RYANT might well have added the fringed loosestrife to his array of brookside plants. It is one of the commonest and most familiar objects beside the streamlets. Its bright yellow, fringed blossoms open in midsummer, often in company with the delicate blue dayflower and the rich rose-purple swamp loosestrife. It is an upright plant, usually growing quite tall, as "flowers that love the running stream" are apt to grow. The fringed loosestrife is a widespread plant, growing from the far north to Florida and westward almost across the continent. It is a curious fact that aquatic plants, or those that grow by running water, often have a broad range. Doubtless their seeds are carried far and wide by the water, giving them the best of opportunities for generous

dispersion.

The name loosestrife has been applied to a number of quite dissimilar plants. The yellow-flowered loosestrifes are *lysimachias* and *steironemas*. The purple loosestrifes are species of *lithrum*. The nearly allied swamp loosestrife is *decodon verticillatus*.

Steironema is from two Greek words meaning "sterile threads," in allusion to the rudimentary stamens; *ciliata* refers to the fringed petioles.

PLATE 52.

GREAT WILLOW HERB, FIREWEED. EPILOBIUM ANGUSTIFOLIUM. (EVENING PRIMROSE FAMILY.)

Stem erect, unbranched, nearly smooth, usually purplish; leaves alternate, short petioled, lanceolate, acute, margin obscurely toothed; flowers in a terminal raceme, showy; petals, four, rose purple; stamens eight; pods erect, long, linear, angled; seeds very small, bearing a tuft of long white hairs.



WE have two native plants to which the name "fireweed" has been given. One is a coarse, ill-smelling plant of the sunflower family, with greenish, rayless heads. The other is the showy willow herb. Both owe their name to the fact that when lands, especially forest tracts, have been burned over, these plants soon make their appearance in the cleared ground and cover the blackened soil with a fresh mantle of vegetation.

"No matter how barren the past may have been,
'Tis enough for us now that the leaves are green."

Both these fireweeds have delicately plumed seeds, which wing them afar in every passing breeze. So the fireweed often appears suddenly in a burned over and desolate tract, without having been seen before anywhere in the vicinity.

The great willow herb is found throughout wide areas of the North, ranging southward in the region of the Rocky Mountains. It displays its spikes of purple flowers in late summer. Few of our native plants are more showy and striking. The plant is hardly less attractive in fruit than in flower. The long pods, splitting open, reveal numerous, tiny brown seeds, each tufted with a fairy-like plume of white hair, much like those of the milkweed.



— 53 —
 SPREADING DOGBANE.
APOCYNUM ANDROSAEMIFOLIUM.
 JUNE.



— 54 —
 SMALL BEDSTRAW.
GALIUM TINCTORIUM.
 JUNE.

PLATE 53.

SPREADING DOGBANE. APOCYNUM ANDROSÆMIFOLIUM. (DOGBANE FAMILY.)

Stem smooth, much branched; leaves opposite, short-petioled, broadly ovate, sharply mucronate at apex, rounded at base; flowers in open cymes; calyx small, five-parted, divisions acute; corolla campanulate, five-lobed, lobes reflexed, pale pink or nearly white; stamens five; pods long and slender.



FAMILIAR butterfly with deep orange-red wings veined with black, known in the books as the *Archippus*, visits the dog-bane as well as the milk-weeds, which the early botanists held to be its kin. The later students of flowers declare that there is no family tie between the plants. Can we not repeat Mr. Gibson's question: "Which is right, the insect or the botanist?"

The true dog-bane is usually considered very dangerous, as the name indicates. The subject of the figure, the spreading dog-bane, nevertheless, charms the eye by its beauty. The leaves are of a rich green. The flower is a delicate rose-color or crimson, bell-shaped, the lobes gracefully rolled back. It is usually classed with the weeds, but is not an injurious one. It demands a cool climate and does not range very far southward. It blossoms in midsummer.

The Indian Hemp (*Apocynum Cannabinum*) is much more inclined to make itself troublesome as a weed. Because hardier, it is more common and widespread. The fibrous bark of its stem has given it the name, "Indian Hemp." *Apocynum* means "a plant that a dog should keep away from."

PLATE 54.

SMALL BEDSTRAW. GALIUM TINCTORIUM*. (MADDER FAMILY.)

Stems weak, ascending or reclining, jointed, four-angled, angles retrorsely hispid; leaves in whorls of four or six, linear to oblanceolate, obtusish, the prominent mid-rib hispid; flowers small, on short spreading pedicels, in leafy, cymose clusters; calyx very minute; corolla whitish, three or four lobed.



IN summer one may discover, in marshes or moist meadows, a small, weak-stemmed plant with tiny white flowers, reclining on the grass and other herbage around it. Pull a piece of the stem and run your finger upward along one of the angles. It is quite rough, like the surface of a file. So are the margins of the leaves. This bristling little plant is the small bedstraw or goose-grass. It is found almost everywhere in North America, as well as in Europe and Asia.

There are numerous species of galium in this country, all of them rather insignificant plants with greenish, purplish or white flowers. *Galium circaezans*, the "wild licorice," a small plant of thickets and rich woods, with dull purple flowers, has a root with something of the flavor of licorice. Another common galium is the "cleavers," a European weed introduced into this country and plentiful in fields and waste ground. The sweet-scented bedstraw, "*galium triflorum*," has an odor in drying somewhat like that of the vanilla grass.

The bedstraws belong to the great madder family, which contains many ornamental and many highly useful plants. The cinchonas, which furnish quinine, rubia, the source of the useful dye—madder, and the coffee plant, are members of this important order.

*Usually known as *G. trifidum*.



— 55 —
BUTTERCUP.
RANUNCULUS ACRIS.
 ALL THE SEASON.



— 56 —
LABRADOR-TEA.
LEDUM LATIFOLIUM.
 JUNE.

PLATE 55.

BUTTERCUP. *RANUNCULUS ACRIS*. (CROWFOOT FAMILY.)

Perennial, hairy; roots a cluster of thickened fibres; stem erect from a short, thick rootstock, branched; leaves mostly clustered at base, long petioled, deeply parted, divisions variously lobed and cleft; flowers large, terminating the branches; petals five, yellow; stamens and pistils numerous.

"The golden king-cup shines in the merry month of May."—SOUTHEY.



HERE it is the "queen of the months" that brings the buttercups. Their gold is a meet diadem for royal June. Of all the glorious panoramas spread before us by the changing seasons, that of a meadow yellowed o'er with the bright corollas of the buttercups or "king-cups" is the most glorious. Thoreau, who found his chief pleasure in watching for and chronicling the wild flowers as they appear in succession, has this to say of the buttercups: "The clear brightness of June was well represented yesterday by the buttercups along the roadside. Their yellow cups are glossy and varnished within, but not without." The hermit of Walden is happy as usual in his description. The petals of the buttercup are as if painted with oil colors on the inside, while the outer surface is of the usual glossless yellow of yellow flowers.

Burroughs' observation on the profusion in which English wild flowers grow as compared with ours, is well borne out by the behavior of the buttercup and the ox-eye daisy in this country. When the ox-eye daisy gains entrance into a field, it is soon thick-starred with white and yellow. When a meadow is invaded by buttercups, its green quickly melts to gold.

PLATE 56.

LABRADOR-TEA. *LEDUM LATIFOLIUM*. (HEATH FAMILY.)

Small, shrub erect, branching, stem woolly above; leaves alternate, on short petioles, oblong or ovate-lanceolate, obtuse, thick, smooth above, laxely woolly beneath, margins revolute; flowers in rather dense, terminal clusters; corolla white, five-parted almost to the base; pod five-celled, splitting from base upward.



AMERICA is indebted to the heath family for the handsomest of all her shrubs. In truth, we have not the glorious heath itself that in England and Scotland paints each upland moor with the bright purple of its fairy bells. But we have other plants not less beautiful. Our superb rhododendrons, with their great clusters of pale pink or rosy flowers topping masses of dark green foliage; the azaleas, with their blossoms of white, pink, rose-red, orange or flame-color; the royal kalmias; the sourwood, with its leafage of delicate green, turning to a fiery red in autumn, and its panicles of white, deliciously fragrant flowers, not unlike the bells of the lily-of-the-valley; and the sweetly odorous pepper-bush.

Worthy a place even with these is the Labrador-tea. Its dark green, leathery leaves are covered beneath with a rust-colored wool, which shields them snugly in the bud. The deep color of the upper leaf-surfaces contrasts well with the white flowers. One would expect fragrance in these blossoms. No, they are not scented. But the leaves, when bruised, exhale a faint, agreeable aroma. A decoction of the leaves is sometimes used as a tonic, hence the popular name. The Labrador-tea is found in deep woods and bogs in the Northern States and some parts of Canada.

PLATE 57.

HEDGE BINDWEED. VOLVULUS (CONVOLVULUS) SEPIUM. (CONVOLVULUS FAMILY.)

Stem climbing, smooth or nearly so; leaves alternate, long petioled, triangular-ovate, hastate or sagittate at base, acute at apex; flowers on long axillary peduncles, with two large, ovate bracts enveloping the calyx; corolla open-campanulate, white or rose-colored.

"The bindweed's ivory buds that glow
As delicately blushing as a shell."—CELIA THAXTER.



HE convolvulus sepium, bindweed, or morning glory is at its best now. It always refreshes me to see it. I associate it with holiest morning hours. It may preside over my morning walk and thoughts."

So writes Thoreau in midsummer, when the dog-days are approaching and the fields are less inviting at noontide than earlier or later in the day. It is then that we love morning and evening. When the winds of April blow we prefer mid-day with its warmth for our rambles. In July we choose the rising or the sinking sun for our companion. It is the flowers that we find open in the fresh morning, with the grateful dew in their cups, that then please us best. The morning-glory climbing the lattice to greet the newly-risen king of day with its uplifted white or pink or blue corollas; the man-of-the-earth that brightens upland fields with its great, white, purple-hearted flowers, closing before noon; or the cousin of these, the bindweed, twining in fence-rows and hedges, such are the flowers which greet the dawn.

It is a handsome plant, the bindweed, with its halberd-shaped leaves and its white or rosy bells. It is quite a cosmopolite, encamping in Europe and Asia as well as in North America.

PLATE 58.

RED CLOVER. TRIFOLIUM PRATENSE. (PEA FAMILY.)

Perennial; stems tufted, erect or ascending, hairy; leaves long petioled, with prominently-nerved, ovate stipules, palmately trifoliate, leaflets broadly ovate or obovate, marginate, dentate, appressed-hairy; flowers in dense terminal spikes; corolla irregular, with a long tube, rose-purple or sometimes white.



IN his delightful record of "Summer," Thoreau enters for June 15: "The clover gives whole fields a rich and florid appearance. The rich red and the sweet-scented white. The fields are blushing with the red as the western sky at evening." Again he writes, "The rude health of the sorrel cheek has given place to the blush of clover." What a pretty idyl of early summer is this! How vividly it brings before our eyes meadows where we have walked knee-deep in the green and purple of honeyed clover, fragrant as with the very breath of heaven. But there is use in all this beauty, and the incense of the blossoms is no idle gift. When our clover was borne to Australia and planted there, it thrived mightily, but refused to bring forth seed. And why?

Simply because the clover demanded the accustomed ministries of our humble-bee. When that faithful little servant was brought all the way across the Pacific to the plant in its new home, the succession of seed to blossom was at once established. Many a vital partnership like this subsists betwixt insects on the wing and the flowers into which they dip, for in the very act of taking its repast a bee, a moth, or butterfly, unwittingly pays its way by bringing pollen from one blossom to its mate.



— 57 —

HEDGE BINDWEED.
VOLVULUS (CONVOLVULUS) SEPIUM.
JUNE.



— 58 —

RED CLOVER.
TRIFOLIUM PRATENSE.
ALL THE SEASON.

PLATE 59.

DANDELION. TARAXACUM. (DENS-LEONIS). (SUNFLOWER FAMILY.)

*Perennial, acaulescent; rootstock short, thick; leaves smooth or nearly so, pinnatifid, divisions coarsely toothed, the uppermost much the largest; scape bearing the large head naked, hollow; involu-
cral bracts in two series; flowers all strap-shaped, yellow; achenes furnished with a tuft of white hairs.*

"The dandelions and buttercups
Gild all the lawn."—LOWELL.

"Dear common flower that growest beside the way,
Fringing the dusty road with harmless gold,
First pledge of blithesome May."—LOWELL.



OW glad we are to welcome the first dandelion as it peers forth in some sheltered corner when the grass is taking on a fresher green, when the buds on elm and maple begin to swell and the fresh fragrance of soil upturned by the plough is in the breeze. Cheery little yellow heads, awaiting but a day or two of warm, bright weather to show themselves. Sometimes they peep out in midwinter.

But when spring has commenced in earnest, how "the dandelions from the grass leap forth!" In a twinkling the sward is ablaze with their blithe faces. Then, when the yellow flowers have faded, the stalk grows on, bearing at its summit the ball of plumed seeds which children blow away to tell the hour. We can forgive Europe the host of pauper-plants she has flung upon our shores, for to her we owe the dandelions, so called from the fancied resemblance of its petals to the teeth of the lion.

PLATE 60.

COMMON BLUE VIOLET. VIOLA OBLIQUA (CUCULLATA). (VIOLET FAMILY.)

Perennial acaulescent; leaves on long petioles, broadly ovate to almost orbicular, deeply heart-shaped; flowers on long, slender peduncles; corolla deep blue, irregular, lower petal prolonged into a short blunt spur; stamens united by the filaments above the anthers into a ring around the pistil.

"The violet woos
To his heart the silver dews."—TENNYSON.



FTER all, we have few flowers that are dearer to us than our modest blue violet. We may lavish praise on this or that gorgeous plant, but we love best the little blossom that greets us as a familiar friend from every woodland bank, from every grassy fence-corner. What a clear, trustful color is the blue-purple of the dainty, spurred corolla! There is but one charm we would gladly see added to those of our blue violet—fragrance. That is what has made its cousin, the English violet, such a universal favorite. Shelley's lines—

"And the violet tells her tale
To the odor-scented gale.

would not apply to ours, at least to the blue violet. Some of our white violets are slightly odorous, for when Dame Nature withholds the gift of color, she is apt to bestow the charm of perfume. One other European violet is well known with us, the heart's-ease, *viola tricolor*. From this all the beautiful garden pansies are descended. It would be difficult to imagine a wider gamut of color harmonies than the pansy blossoms offer us. But the hue of our common blue violet presents as rich a color as any due to the gardener's nurture of the pansy.



— 59 —

DANDELION.
TARAXACUM (DENS-LEONIS).
ALL THE SEASON.



— 60 —

COMMON BLUE VIOLET.
VIOLA OBLIQUA (CUCULLATA).
MAY.

PLATE 61.

SHIN-LEAF. PYROLA ELLIPTICA. (WINTERGREEN FAMILY.)

Perennial; stem simple, bearing one or two clusters of leaves near the base and a terminal raceme of flowers; leaves decurrent on their petioles, broadly ovate or oblong, obtuse or retuse at apex; corolla five cleft to the base, greenish white.

" 'Tis sweet, in the green spring,
To gaze upon the wakening fields around;
Birds in the thicket sing,
Winds whisper, waters prattle from the ground,
A thousand odors rise,
Breathed up from blossoms of a thousand dyes.—BRYANT.



F, at this season, so often and so well sung by our great poet, we wander through some fertile wood almost anywhere north of Virginia, we may notice little rosettes of dark green leaves close to the ground. Thick shining leaves they are, seeming to spring straight from the soil, unsupported by a stem. These leaves are evergreen and have survived the rigors of the long winter, under the snow. If we look into the centre of this cluster of leaves, we will find a tiny bud. Ere long this expands into a "pagoda-like stem of flowers." They are not showy blossoms; but modest and graceful.

"Flower-bells that expand and shrink."

They are greenish-white in color. Often we may detect a delicate, elusive odor about them.

The origin of the popular name for *pyrola elliptica* has been alluded to in the description of *pyrola secunda*. The wintergreens are a connecting link between the heaths and those curious, leafless parasites—the Indian pipe and its allies. The "Prince's pine" or pipsissewa is a near relation.

PLATE 62.

COMMON MUGWORT. ARTEMISIA VULGARIS. (SUNFLOWER FAMILY.)

Perennial from a woody rootstock; stem tall, round-like, smooth below, pubescent above, often purplish; leaves alternate, pinnatifid, divisions sharply cleft and toothed, white-woolly underneath; heads small in a long, narrow panicle; involucre cylindrical; flowers purplish, none of them ligulate.



HO would suppose that the mugwort with its small, purplish or pink, rayless heads, and the gorgeous sunflower are of the same blood? Yet so it is. It is with plants as with men. Each family has its beautiful and its homely members, its children fortunate or little favored. But the artemisias are not altogether the most poverty-stricken of their family. They have what the gaudy sunflowers lack—a grateful aroma. The fragrance of these plants is hardly to be compared to that of any others. It is peculiar and characteristic; it refuses to be described.

The common mugwort is a European weed which has naturalized itself here, especially near the Atlantic coast. Its most remarkable character is the whitened under-surface of the leaf. We have a large number of native artemisias, besides several that have come to us from Europe. Among these is the southern wood, a shrubby species, a fugitive from gardens. They are all aromatic and bitter to the taste. These qualities are very pronounced in *artemisia absinthium*, the wormwood which is so bitter that its name has become a proverb. This herb is used with brandy in the composition of the deadly cordial, absinthe. *Artemisia* was the wife of Mausolus, King of Caria, in whose honor she erected the famous mausoleum at Halicarnassus.



— 61 —
SHIN-LEAF.
PYROLA ELLIPTICA.
JUNE.



— 62 —
COMMON MUGWORT.
ARTEMISIA VULGARIS.
JULY.

PLATE 63.

SPRING BEAUTY. CLAYTONIA CAROLINIANA. (PURSLANE FAMILY.)

Perennial; stem weak, arising from a hard, rounded tuber deep in the ground; leaves opposite on long petioles, elliptical, or broadly spatulate; flowers on slender pedicels in a one-sided, terminal raceme; sepals two; petals five, much longer, pale pink; stamens five, attached to the petals.

"New are the buds on the oaken spray,
New the blades of the silken grass;
Flowers that were buds but yesterday,
Peep from the ground where'er I pass."—BRYANT.



THE sap is flowing and leaves are unfolding, and the rich, moist woodland earth heaves and bursts with life, with the first sweet wild flowers that grace the footsteps of new-born spring, comes the claytonia. It is fitting that this, one of the fairest of our vernal flowers, should be called spring beauty. Under a sheltering bank or at the foot of protecting trees, arise the frail stems with their two fresh green leaves and the cluster of dainty blossoms. A delicate little plant it is, shivering in the slightest breath of wind. The round, nut-shaped tuber, deep in the ground, is the only hard, firm part of it. What words can describe the fairy blossoms of the spring beauty? The five petals of an ethereal pink, prettily veined with crimson-purple, are scarce earthly in their loveliness. One would feign believe they have fallen from celestial spaces.

PLATE 64.

COMMON WOOD-SORREL. OXALIS ACETOSELLA. (WOOD-SORREL FAMILY.)

Acaulescent; rootstock creeping, scaly; leaves on long petioles, palmately trifoliate, leaflets very broad, obcordate, green and appressed-hairy on the upper surface, pale beneath, mid-rib prominent; flowers on peduncles as long as or longer than the leaves; petals five, white with purple veins.

"Sorrel, that hangs her cups,
E'er their frail form and streaky leaves decay,
O'er her pale verdure, till parental care
Inclines the shortening stems, and to the shade
Of closing leaves her infant race withdraws."—GISBORNE.



HIS little, elfin, wild-wood flower is the admiration of all who find it. It is a shy plant, liking best mossy nooks in forest solitudes. There it opens its elegant blossoms among the pretty, three-parted leaves. The petals are white, or with a faint blush of pink, charmingly penciled with purple and marked with yellow at the base. Like its sister, the yellow-flowered "sour-grass," it has a crisp, acid taste that is very refreshing and pleasant. The wood-sorrel grows in deep woods and bogs in the northern part of the continent, straying southward on the cool heights of the Alleghanies and Blue Ridge, to Georgia. It is also a native of Europe. This plant is accounted the origin of the Irish shamrock, the name having been gradually transferred to the commoner and better-known white clover. A "four-leaved" wood-sorrel is certainly rare.

A handsome sister of oxalis acetosella is the violet wood-sorrel, a native of our eastern country. It has rose-colored flowers, turning violet as they wither. In the world of flowers and leaves, decay's first ministry is often such embellishment as this.

"Blessings brighten as they take their flight,"



— 63 —

SPRING BEAUTY.
CLAYTONIA CAROLINIANA.
APRIL—MAY.



— 64 —

COMMON WOOD-SORREL.
OXALIS ACETOSELLA.
JUNE.



— 65 —

GREEK VALERIAN.
POLEMONIUM REPTANS.



— 66 —

OSWEGO TEA.
MONARDA DIDYMA.
JUNE, JULY.

PLATE 65.

GREEK VALERIAN. POLEMONIUM REPTANS. (POLEMONIUM FAMILY.)

Perennial from a knotty rootstock, almost glabrous; stem erect or reclining, branching; leaves alternate, odd pinnate, long petioled; leaflets thin, ovate lanceolate, mucronate; flowers in almost naked corymbs; corolla short campanulate, five lobed; stamens borne on the tube of the corolla; pod much shorter than the enlarged fruiting calyx.



ESIDES the handsome, many-colored phloxes and showy gilies, there is another genus of beautiful plants in the polemonium family, the genus from which the family takes its name. The Greek valerian, or Jacob's Ladder, of Europe, *polemonium cæruleum*, is represented in this country by two or three closely related species. Of these the creeping Greek valerian is the best known and most common. It is a frequent plant in low, rich woods from the Middle States to Missouri and southward. It flowers in May and June. It is a pretty plant, with weak, spreading stems, compound leaves and loose clusters of showy, clear blue, bell-shaped flowers. If the name "bluebells" had not been appropriated to other plants, it would be a fitting title for this.

There are two other kinds of Greek valerian in North America. One grows in the far northward and Northeastern States. The other is a native of the Rocky Mountains. Both have long been considered identical with the European *polemonium cæruleum*, but have been described as distinct species by recent authors.

The name *polemonium* is from a Greek word for war. Doubtless this is the reason that it has come to signify "rupture" in the language of flowers. It is a pity that so fine a plant should come to have so harsh a meaning.

PLATE 66.

OSWEGO-TEA. MONARDA DIDYMA. (MINT FAMILY.)

Stem erect, branched, four-angled, smooth or slightly pubescent; leaves opposite, petioled, ovate, acuminate, sharply serrate; heads large, terminating the branches; involucrel bracts reddish; flowers large; calyx five-toothed, tube curved; corolla bright scarlet, two-lipped, upper lip erect, lower pendant.



HE mint family does not contain many brilliant flowers. The mints as a rule devote their energies to the production of delightful odors, and seldom care to adorn themselves with gay colors. There are notable exceptions in grace of attire,—the weirdly beautiful *synandra*, the showy false dragon-head, and some of the blue and white skull-caps. But none of these is fragrant. The Oswego-tea is one of the few of the mints of Eastern North America in which perfume and conspicuous beauty are combined. This may be said of nearly all the species of *monarda*. Most of them have large, handsome flowers and a warm aromatic odor.

The Oswego-tea is a singularly pretty plant. The deep green of the leaves is an excellent relief for the vivid cardinal-red of the flowers. These are deeply and widely two-lipped. It is a plant of cool, shady places along streams, usually growing in patches, making a charming stretch of warm bright color. The aromatic leaves are, in some localities, administered in the form of "tea" as a remedy for divers maladies. *Monarda didyma* is native in the Appalachian region, as far south as Georgia, and strays northward.



— 67 —

SPIDERWORT.
TRADESCANTIA VIRGINICA.



— 68 —

SILVER WEED.
POTENTILLA ANSERINA.

PLATE 67.

SPIDERWORT. TRADESCANTIA VIRGINICA. (SPIDERWORT FAMILY.)

Perennial; root a cluster of thickened fibres; stem erect, smooth or hairy, jointed, joints sheathed by the clasping bases of the long, linear or lanceolate, grass-like leaves; flowers in an umbel bracted by the upper leaves; outer three perianth segments green, inner three purple.



ABOUT flowers that open only to wither there is a tender charm. These are the dragon flies of the plant world, ephemeral beauties, expanding at

"The breezy call of incense-breathing morn,"

fading like vapor in the light of the mid-day sun. Such are the delicate blossoms of the spider-flower. Brave and hardy they look in their dress of rich purple, till the hot sun blasts them. Then they melt away like wax. The withered, mucilaginous petals can be drawn out into fine threads like those of a spider's web, hence the popular name.

Tradescantia Virginica is a beautiful plant. The flowers with their golden stamens and their petals of a fine shade of blue or of purple are as pretty as they are curious. The spiderwort does not extend north of the Middle States in the East. In the West, it grows in Minnesota, straying into Canada, and westward to the Rocky Mountains. Southward it ranges to Florida and Texas. The flowers appear in May and June. Another pretty little spiderwort is *tradescantia rosea*, with pink-purple flowers, a native of the Southern States. Some of the tropical species are exceedingly handsome, with flowers much larger than ours.

PLATE 68.

SILVER-WEED. POTENTILLA ANSERINA. (ROSE FAMILY.)

Acaulescent; roots fibrous, thickened; rootstock short, sending out long stolons rooting at the joints; leaves pinnate; leaflets numerous, the lower very small and small ones interspersed among the upper, oblong, coarsely toothed, green above, whitened and sericeous beneath; flowers solitary on long peduncles, yellow.

"Full many a gem of purest ray serene,
The dark, unfathom'd caves of ocean bear;
Full many a flower is born to blush unseen,
And waste its sweetness on the desert air."—GRAY.



MANY of our prettiest wild flowers might as well blossom and die in inaccessible deserts, so little notice do they win. We seek out the shy forest flowers and admire them, passing, unheeding, many a blossom quite as fair, because it dwells by the roadside—too near for observation!

Thus the silver-weed, a really handsome plant, is noted but by few. Yet its yellow cups and leaves silver-lined beneath make it worthy of praise by all who can esteem true grace. It inhabits swamps and low banks of streams—a northern plant, not extending south of New Jersey. Like several others of our species of *potentilla*, it is common to this country and to Europe. Indeed, the cinquefoils seem to be a peculiarly cosmopolitan tribe.

The silvery appearance of the lower surface of the leaf is due to long silky hairs. The usefulness of such hairs, in the bud, is evident, for there they are a mantle against cold; of what value they are to the grown plant is not yet discovered.



— 69 —

WOOD-DAFFODIL, BELLWORT.
UVULARIA PERFOLIATA.



— 70 —

PINK AZALEA.
AZALEA (RHODODENDRON) NUDIFLORA.

PLATE 69.

WOOD-DAFFODIL, BELLWORT. *UVULARIA PERFOLIATA*. (LILY FAMILY.)

Stem smooth, simple, rising from a short rootstock bearing a cluster of thickened, fibrous roots; leaves alternate, ovate, acute, glaucous beneath, the lower perfoliate, the uppermost cordate; flower large, campanulate; perianth segments six, lanceolate, acute, pale yellow; fruit consisting of a three-angled pod.

"When our wide woods and mighty lawns
Bloom to the April skies"—



R, perchance, somewhat later, in the North, we find the bellwort nodding its pale yellow flowers in rocky woods and copses. When the flowers blow, the leaves that clothe the stem are only half unrolled. The whole plant is whitish with a bloom like that of cabbage leaves. The leaves seem to be punctured by the stem, which appears as if passing through them. In reality the leaves are merely heartshaped, with the two lobes of the "heart" grown together, so as to surround the stem. Here we come upon an example of the defences so common in nature. The flower is intruded upon by crawling insects which pay no score for the pollen they eat—they do nothing for fertilization. With a perfoliate leaf to fence them out, these marauders are discouraged. This protection, slight as it is, tells to the advantage of the plant in its unceasing battle for life and offspring. The wood-daffodil is a common plant of North America, extending westward almost to the Rockies.

PLATE 70.

PINK AZALEA. *AZALEA (RHODODENDRON) NUDIFLORA*. (HEATH FAMILY.)

Low shrub, much branched, straggling; leaves fasciated at the ends of the twigs, ovate lanceolate, acute, mucronate, ciliate and hairy on the mid-rib; flowers in umbel-like clusters from large scaly buds, appearing before the leaves, glandular, with a long tube and a spreading limb, pale pink.

"Azaleas flush the island floors,
And the tints of heaven reply."—EMERSON.



EW of our native shrubs are so admired and prized as the azaleas. None are better entitled to the honor. The beautiful, and often deliciously fragrant, flowers are of every conceivable dye. Those of the superb tree-like azalea, *azalea arborescens*, of the Alleghany mountains, and the swamp honeysuckle, *azalea viscosa*, of marshes along the Atlantic coast, are pure white or faintly tinged with pink. The flame-colored azalea, *azalea calendulacea*, also an Alleghany mountain species, has a corolla ranging in color from bright orange and the hue of living embers, to a brilliant scarlet.

The pink azalea is the earliest flowering of them all. The flowers appear in clusters at the ends of the twigs, in April and May. They come with the leaves, or herald their coming, as do those of the flame-colored azalea. The color of the corolla varies from a light shade of pink to the deep rose of oleander blossoms. An azalea bush, covered with these large flowers before the leaves are unfolded, is a conspicuous mark for the eye of man and insect-minister in the low thickets where it usually grows. The pink azalea is common in the eastern part of the continent.



— 71 —

RATTLESNAKE ROOT.

PRENANTHES ALBA.

AUGUST.



— 72 —

SANDPAPER STARWORT.

ASTER LINARIIFOLIUS.

SEPTEMBER.

PLATE 71.

RATTLESNAKE-ROOT. PRENANTHES ALBA. (SUNFLOWER FAMILY.)

Perennial, smooth; stem erect, tall, often reddish; leaves alternate, the lower on long petioles, lobed and irregularly toothed, the upper broadly triangular-ovate, uppermost lanceolate; flowers in panicled, drooping heads; involucre bell-shaped, of a single row of bracts; flowers all ligulate.

"The last pale flowers that look,
From out their sunny nook,
At the sky."—BRYANT.



NE of these is the rattlesnake-root. The tall wand-like stem with its cluster of drooping, bell-shaped heads is one of the most striking objects of the autumn woods. While the last golden-rods are lingering in fence-corners and along brooks, loath to relinquish their golden pomp: while asters and gentians are donning their bravest livery in honor of departing summer, the prenanthes shoots up on the wooded hillside, only to hang its head in sorrow at the passing of the year.

The flowers are of an indistinct yellow-white, insignificant enough individually. The seeds are tufted with brown-purple hairs. When these are ripe, the heads open and the seeds are carried far and wide by the wind. The rattlesnake-root belongs to that part of the huge sunflower family, notable for having all the flowers open and strap-shaped. It is in this respect unlike the asters, sunflowers, coreopsis and others, for these have a circle of strap-shaped rays surrounding a disk of smaller, tubular flowers.

As the popular name signifies, prenanthes alba is one of the many plants whose roots are supposed to be a cure for snake-bites. It is a common plant northward, but becomes scarce and confined to the mountains in the South.

PLATE 72.

SAND PAPER STARWORT. ASTER LINARIIFOLIUS. (SUNFLOWER FAMILY.)

Perennial; roots fibrous; stems clustered, woody at base, erect, slender; leaves alternate, sessile, linear, acute, one nerved, rough on the margins, the upper much reduced; heads large, terminating the branches; involucre much imbricated, consisting of numerous, narrow, green-tipped bracts; rays violet.

"On the hills the golden-rod, and the aster in the wood,
And the yellow sunflower by the brook, in autumn beauty stood."



BRYANT is here rather at fault in his reading of

"The calendar,
Faithful through a thousand years,
Of the painted race of flowers,
Exact to days, exact to hours";

because the sunflowers are on the wane when the golden-rods come, and most of the asters are later in flowering than the golden-rods. Nevertheless, there are some early asters which may be considered as flowering with these. Aster linariifolius, for example, begins to blow ere the late sunflowers have passed away, and while the golden-rods are in their glory. It is a pretty plant, with clustered, erect stems, short, narrow, rigid leaves, and numerous, rather large, flaunting heads. The rays are of a beautiful violet color. It is a sylvan aster, preferring dry, wooded hillsides. In such secluded places it is common in eastern North America. It commences to flower early in September in the South, while northward it blossoms almost up to frost. The rough margins of the leaves have earned for it the name of "sand-paper starwort," in some localities. As a general thing, however, the different kinds of aster have not received popular names.

PLATE 73.

SHRUBBY CINQUEFOIL. *POTENTILLA FRUTICOSA*. (ROSE FAMILY.)

Stem shrubby, with a shreddy bark, much branched; leaves long petioled, pinnately compound, leaflets mostly five, occasionally seven, lanceolate, white and sericeous beneath, revv., flowers in cymes, or solitary at the ends of the branches; petals five, orbicular, bright yellow; stamens numerous.

"The herbs and simples of the wood,
Rue, cinquefoil, gill, vervain and agrimony,
Blue-vetch and trillium, hawkweed, sassafras,
Milkweed and murky brakes, quaint pipes and sundew."—EMERSON.



THESE are enumerated our characteristic wild flowers—the cinquefoil in a place of honor. The list is given us in the poem entitled "Blight," wherein the Concord sage—the heart of a Greek philosopher throbbing in his breast—sharply rebukes the students who

"Love not the flower they pluck, and know it not,
And all their botany is Latin names."

The cinquefoil, with other members of the potentilla race, is one of the wild flowers which, in the North, oftenest renews acquaintance with the observer.

The shrubby cinquefoil makes its home in swamps in Canada and the Northern States, extending westward as far as Minnesota. It is also indigenous to Europe. It is a very beautiful plant. The dark green leaves are silky white beneath. The golden flowers appear in profusion throughout the summer.

To those learned in the language of the flowers the blossoms of the cinquefoil signify "maternal affection." If it were "filial love," the significance would be clearer, for most species of potentilla hug close to Mother Earth. Nearly all the cinquefoils have bright yellow flowers, but there is an odd kind in Arizona, with dark purple petals.

PLATE 74.

WAKE-ROBIN, BIRTHROOT. *TRILLIUM ERECTUM*. (LILY FAMILY.)

Perennial, smooth; rootstock thick, oblique; stem simple, erect, terete, bearing a whorl of three leaves and a solitary flower; leaves rhombic-ovate acuminate, revv., veins reticulated; flower large, on a curved pedicel; sepals, three, green; petals, three, ovate-lanceolate, acute, colored.

"Little brings the May breeze
Beside pure scent of flowers,
While all things wax and nothing wanes
In lengthening daylight hours."—BRYANT.



AMONG the countless fair flowers that paint the ground with rainbow hues in the glorious month of awakening, none are more beautiful than the trilliums. Stanch natives are the trilliums. Two or three, 'tis true, are natives of Western Asia; but these are little known, and the familiar species are all ours.

The wake-robin, or birthroot, is one of the handsomest. The flowers are larger than those of the painted trillium. The color of the petals is usually a dull red. Sometimes we find them white, splashed with red at the base, so as to give a crimson heart to the flower. The birthroot is one of the flowers that scents the May breeze, but not with a delightful fragrance. Its odor is distinctly unpleasant—that is, to human nostrils; what insects think of it is another matter. The birthroot is one of the trilliums that have the flower borne on a stalk, above the leaves. This stalk is usually more or less bent, making the blossom droop gracefully. The lesson conveyed by the trillium to those who read the flower language is that of "shy beauty." *Trillium erectum* grows southward to Tennessee, and westward to Missouri, but its stronghold is in Canada and the Northeastern States.



— 73 —

SHRUBBY CINQUEFOIL.

POTENTILLA FRUTICOSA.

JUNE.



— 74 —

WAKE-ROBIN, BIRTHROOT.

TRILLIUM ERECTUM.

MAY.

PLATE 75.

GROUND CHERRY. *PHYSALIS VIRGINIANA*. (NIGHTSHADE FAMILY.)

Hairy perennial; stem erect when young, soon prostrate, branching; leaves alternate or almost opposite, in which case one is smaller, long petioled, ovate, obtuse or acutish, rounded or truncate and unequal at base, coarsely toothed and sinuate; flowers on axillary pedicels; corolla funnel-shaped; anthers yellow.



THE sandy fields of midsummer bring forth a coarse little weed, the ground cherry, insignificant and often unobserved. At first sight we think it is not in bloom. But if we raise one of the branches and look underneath the leaves, we will find the odd little drooping flowers, half funnel-form, half bell-shaped. The color of the blossom is pale yellow, with a brown-purple centre, and more or less veined with the same color. They suggest at once the henbane's lurid flowers. The ground cherry, or physalis, is a near relative of the henbane. It is generally reputed to be more or less poisonous, but it is certainly not as dangerous as the hyoscyamus. Indeed, one species, *Physalis Alkekengi*, has a berry which is sometimes eaten under the name of strawberry-tomato. It is the fruit of the physalis that earns it the name by which it is popularly known. The fruit is a round yellow or scarlet berry, not unlike a cherry in appearance. It is enveloped by the greatly enlarged, papery calyx, hence the name *Physalis*, which means a bladder.

There are many species of physalis here. One is a common weed of gardens and corn-fields, *Physalis pubescens*, a small flowered species.

PLATE 76.

BLUE-EYED GRASS. *SISYRINCHIUM BERMUDIANUM*. (IRIS FAMILY.)

Whole plant smooth; roots fibrous; stems numerous, tufted, six to eighteen inches high, flattened, usually winged; leaves long, linear; flowers few in an umbel, subtended by a spathe of two leaves; perianth segments six, aristate; stamens six, united; stigmas three.



GRACEFUL little plant with six-parted azure flowers that opens in meadows or on hillsides in late spring and early summer. It is often unseen, for it grows among the grass, loving to hide itself. If we search for it at noon-time when the broad sunlight beats upon the fields, we will not find the star-like blossoms. "All things in this world," writes Thoreau, "must be seen with the dew on them, must be seen with youthful, early-opened, hopeful eyes." That is the charm of the modest blue-eyed grass. It opens its eyes in the fresh morning, but shuts them to the midday glare. It is while the trees still cast long westward shadows on the wet grass that we may expect to catch it awake.

It is not strange that the sisyrinchium is called a grass. The leaves, even the flat, winged stems, are grass-like. When one sees it with the blossoms closed, its true affinity would not be guessed at. But the blue-eyed grass is really a cousin of the proud iris. The large, irregular, showy flowers of the flags seem to have little in common with the six-parted, regular blossom of the other, yet their plan is one and the same.



— 75 —

GROUND CHERRY.
PHYSALIS VIRGINIANA.



— 76 —

BLUE-EYED GRASS.
SISYRINCHIUM BERMUDIANUM.

PLATE 77.

EGLANTINE, SWEET-BRIER. *ROSA RUBIGINOSA*. (ROSE FAMILY.)

Much branched shrub; stems armed with stout, curved prickles, stipules prominent; leaves pinnate, leaflets usually five in number, ovate, acute, sharply serrate, extremely glandular beneath; calyx lobes long, spreading, pinnatifid; petals five, pale pink; hip ovoid, bright scarlet.

"In the warm hedge grew lush eglantine."—SHELLEY.

"The honey wine,
Of the moon unfolded eglantine
Which fairies catch in hyacinth bowls."—SHELLEY.



English poets only Wordsworth knew the flowers as Shelley did and described them as lovingly, albeit Wordsworth is less fanciful than Shelley, and his pictures are less "impressionistic." Wordsworth, too, loved best the shy grace of the wild flowers, while Shelley tuned his lyre to the praise of the wards of the gardener.

Perhaps no flower combines so much rustic wildness of beauty with a fondness for dwelling near human haunts as does the eglantine. One of the loveliest of roses, it has come to us from Europe and has long made itself at home in the new world. Hawthorne, in "The Scarlet Letter," gives us a beautiful picture of the sweet brier bush that grew at the door of the gloomy New England jail, the one bright object that met the eyes of the unhappy prisoner as she entered.

The exquisite beauty of the eglantine with its dainty pink flowers and graceful leafage, is joined to a delightful, penetrating fragrance. This comes from the essential oil contained in the tiny glands on the under-surface of the leaf.

PLATE 78.

GOLDEN RAGWORT. *SENECIO AUREUS*. (SUNFLOWER FAMILY.)

Whole plant glabrous, at least when mature; stem erect, usually stout, furrowed; root leaves on long petioles, large, short oblong or orbicular, cordate, crenate; stem leaves lyrate, uppermost sessile, clasping, deeply toothed; heads in a terminal, corymbose panicle, bright yellow, rays usually ten or twelve.



THE sunflower family is the largest among flowering plants. It includes an enormous number of species, and presents a rich variety of forms. The iron-weed with its tubular purple flowers, the golden-rods and asters, the sunflowers, cone-flowers and coreopsis with their showy rays, the yarrow and white-weed, the rag-weed and the clot-bur with their insignificant greenish flowers, the wormwoods, the thistles, the dandelion and chicory, the wild lettuce and the sow-thistle—all belong to it. All these many forms have in common one unfailing characteristic, the flowers are borne in heads.

The ragworts or senecio are a large genus, both in the old world and in the new. In North America there are numerous species, especially in the Rocky Mountains and in Mexico. In the East, the golden ragwort, *senecio aureus*, is the best known kind. It is a dweller in moist meadows and bogs in the North, but it prefers the mountain meadows of the South. It is a pretty and attractive plant, the fresh sappy green of the leaves in elegant contrast with the brilliant yellow of the heads of its flowers. When the blossoms have faded, the seeds are ripened. These are plumed with soft, white hair. Hence the name *senecio*, from *senex*, an old man.



— 77 —

EGLANTINE, SWEET BRIER.

ROSA RUBIGINOSA.



— 78 —

GOLDEN RAGWORT.

SENECIO AUREUS.

PLATE 79.

NIGHT FLOWERING CATCH-FLY. *SILENE NOCTIFLORA*. (PINK FAMILY.)

Annual; whole plant viscid pubescent; stem erect, usually two or three feet high, much branched; leaves opposite, sessile or on short margined petioles, ovate, spatulate, or lanceolate, acute, veiny, flowers in elongated, bracted cymes; calyx rather large, teeth short; petals five, white, two-toothed.



S*ILENE noctiflora* is one of those odd plants that open their flowers when most others have gone to sleep. When the wood-sorrel has folded its leaves together and the wild senna hugs itself and shivers in the night wind, then the nocturnal catch-fly opens its fragrant, white or pink blossoms by the roadside. They know not the brightness of our sunlight, these pale blossoms. They catch only the pale lustre of the stars, the suns of other systems. The sturdy bee, the dainty butterfly, visit them not. Their guests are the dusky night-moths. It is a coarse unattractive plant as we see it by daylight, covered with sticky hairs, like many of its congeners. But it makes quite another impression on us, as we come upon it at an evening hour.

It is a plant of doubtful origin, the night-flowering catch-fly. Certain it is that it has come to us from the old world. Alphonse De Candolle, the great authority on geographical botany, attributes it to Siberia, but it has long been naturalized in Western Europe, whence it has been introduced into North America. It is pretty well naturalized here, flowering in summer. The name catch-fly has been given to these plants because of the sticky hairs wherewith they are often covered.

PLATE 80.

TICK-TREFOIL. *MEIBOMIA (DESMODIUM) CANADENSIS*. (PEA-FAMILY.)

Stem erect with branches contracted, hairy; stipules small, early deciduous; leaves trifoliate, ovate or oblong-lanceolate, acute, veiny, green above, paler and hairy beneath; flowers comparatively large, in terminal, panicle racemes; corolla violet purple, butterfly-shaped; fruit a loment or jointed pod, joints few, rounded.



T is an admirable contrivance for spreading seeds far and wide—the development of prickles on the fruit so that they may catch in the hair of animals. The maple attains the same desired end of reproduction, by having its fruit winged so that the wind will carry it. The seeds of the thistle and of the milk-weed bear tufts of delicate hairs so as to be wafted on the lightest breeze. In the case of berries and other edible fruits, the seeds are surrounded with a soft pulp, so that birds will devour them. The pods of the witch-hazel discharge the seeds as if from a pistol, to a surprising distance. Some western grasses have long awns or bristles which penetrate the fleece and even the flesh of sheep. The burdock, the beggars'-lice and the tick-trefoil make use of hooked prickles to fasten themselves to animals. The end in view is always the same—to scatter widely the seeds so that the young seedlings will not crowd each other out, but be borne to “pastures new.” The tick-trefoil is a disagreeable plant from its burr-like quality, but is not usually harmful as a weed. It is rather a handsome plant, especially in mass. The large purple flowers are quite showy. It flowers in the summer.



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NIGHT FLOWERING CATCHFLY.

SILENE NOCTIFLORA.



— 80 —

TICK TREFOIL.

MEIBOMIA (DESMODIUM) CANADENSIS.



— 81 —

FRINGED GENTIAN.
GENTIANA AMERICANA (CRINITA).
JULY—AUGUST.



— 82 —

ELECAMPAINE.
INULA HELENIUM.
AUGUST.

PLATE 81.

FRINGED GENTIAN. GENTIANA AMERICANA (CRINITA). (GENTIAN FAMILY.)

Smooth annual; stem erect, much branched, winged above, leaves opposite, sessile, ovate, heart-shaped at base, acute, flowers large, solitary at the summit of the branches; calyx five-lobed, the divisions ovate-lanceolate with membranaceous margins; corolla deeply five-lobed, lobes obovate, fringed.

"Thou blossom bright with autumn dew,
And colored with the heavens' own blue,
That openest when the quiet light
Succeeds the keen and frosty night.

"Thou waitest late and com'st alone,
When woods are bare and birds are flown,
And frost and shortening days portend
The aged year is near his end.

"Then doth thy sweet and quiet eye
Look through its fringes to the sky,
Blue—blue—as if that sky let fall
A flower from its cerulean wall."—*Bryant.*



HE fringed gentian comes to us when all else is dying or dead. While the leaves of maple and sumach are red with the hectic flush that preludes decay, the low-land meadows and marshes give birth to this beautiful flower. The heavenly blue of its delicately fringed blossoms gleams from the browning marshes like the rain-bow through a storm—token that out of death life shall spring again. To those who look for the hidden meaning of things there is something of hope amidst the tender pathos of

"The blue-gentian-flower, that in the breeze,
Nods lonely, of her beauteous race the last."

The Fringed Gentian strays southward to Georgia, and is found westward almost to the Rockies.

PLATE 82.

ELECAMPANE. INULA HELENIMUM. (SUNFLOWER FAMILY.)

Stem erect from a large root, root-leaves, long petioled, one foot or more long, oblong-ovate, dentate, woolly beneath, stem leaves clasping with a cordate base; heads large, terminating the branches; bracts of the involucre large, rhombic-ovate; rays numerous, very narrow.

"The noisome weeds that without profit suck the soil's fertility from wholesome flowers."—*Shakespeare.*



ONE of the many Old World weeds that have found an abiding-place in North America, is the Elecampane. It is not as yet a common plant with us. In fields and roadsides it is met with now and then. Rather a striking plant it is, with large, velvety leaves and bright-yellow, narrow-rayed heads. The name Elecampane,—a pretty name, full of Old World suggestions,—is derived, as to the latter part, from *campus*, the Latin word for "a field." The prefix *ele* is said to be a modification of the Latin name for an allied plant, *Helenium*.

The thick root is filled with gum, and was formerly much used in medicine, combined with syrup, as a valuable tonic and stimulant. It is still used as an ingredient in confectionery in the rural parts of England. It is also used with anise and wormwood in flavoring cordials.

Inula Helenium is a native of Europe and of western Asia, as far southeastward as the Himalayas,—“the heaven-kissing hills.”



— 83 —

ARROWHEAD.

SAGITTARIA LATIFOLIA (VARIABILIS).

JULY.



— 84 —

WILD ORANGE LILY.

LILIUM PHILADELPHICUM.

PLATE 83.

ARROW-HEAD. SAGITTARIA LATIFOLIA (VARIABLES). (WATER-PLANTAIN FAMILY.)

Fibrous-rooted, aculeate, semi-aquatic perennial; leaves on long, hollow petioles, net-veined, deeply sagittate or hastate; the lobes often longer than the rest of the blade, obtuse or acute; flowers monocious, pedicelled or in whorls on a naked scape, the pistillate below, the staminate above.

"There was never mystery
But 'tis figured in the flowers."—Emerson.



AMONG the wild-flowers one may find the emblem of every human passion, instinct, thought. Joy and sorrow, pleasure and pain, charity and hate, all have their sign in the plant-world. In the arrow-head we seem to have an emblem of war, of war after the fashion of the erstwhile-dwellers in our country. It is as if the weapons buried with the Indian sachem had sprung into life under the influence of some magic spell. Innocent arrow-heads are these that rise on their shafts out of the mud and the water. There is no venom on their points, they destroy no living thing, yet they mimic well the primitive instrument of death.

Sagittaria latifolia is a common plant in North America. The cluster of bright green leaves with the stalks of white flowers among them are to be seen in every shallow pool, in every bog and ditch. The well-opened flowers are quite pretty. Especially so are the staminate ones with the heart of golden stamens circled by the three milk-white petals.

We have several kinds of Sagittaria, of which Sagittaria latifolia is the most common. It is much like the European Arrow-Head.

PLATE 84.

WILD ORANGE LILY. LILIUM PHILADELPHICUM. (LILY FAMILY.)

Perennial stem erect from a scaly bulb, terete, smooth, branching towards the summit; leaves in whorls of five or six, sessile, lanceolate, acute, parallel-veined; flowers erect, terminating the branches; sepals six, long-clawed, blade ovate-lanceolate, orange spotted with purple; stamens six, with long filaments and versatile anthers.



FEW handsomer flowers than the wild lilies are to be found in the meadows or woods of North America. The charm of these plants is never-failing. Perhaps no other flowers that lack fragrance are so much admired. They are elegant plants, the lilies. The simple, upright stems with their circles of smooth, green leaves so regularly disposed, and their crown of superb flowers,—what more of beauty could Nature bestow on them? We are not disappointed by their scentlessness. A perfumed Orange Lily would strike us as an incongruity,—much as if 'twere painted.

Thoreau associates the Orange Lily with the spirit of midsummer. He draws a fine picture of the landscape at that season and places this flower its central figure. "The red lily with its torrid color and sun-freckled spots, dispensing, too, with the outer garment of a calyx, its petals so open and wide apart that you can see through it in every direction, tells of hot weather. It is of a handsome bell-shape, so upright, and the flower prevails over every other part. It belongs not to spring."

Lilium Philadelphicum is by no means confined to the vicinity of Philadelphia. It is common in the northeastern States, extending westward beyond the Mississippi and southward to North Carolina and Tennessee.



— 85 —
WILD YELLOW LILY.
LILIUM CANADENSE,
JULY.



— 86 —
OX-EYE DAISY, WHITEWEED.
CHRYSANTHEMUM LEUCANTHEMUM,
JUNE.

PLATE 85.

WILD YELLOW LILY. *LILIUM CANADENSE*. (LILY FAMILY.)

Stem simple, tall, rising from a bulb prolonged at base into a root-stock; leaves ovate-lanceolate, sessile, in whorls of four to six, minutely hispid on the margins and veins; flowers bell-shaped, nodding on the summits of the branches; sepals not clawed, orange-yellow with brown-purple spots.

"It was the time when lilies blow,
And clouds are highest up in air."



HUS Tennyson begins one of his inimitable short poems. How delightfully suggestive are these simple lines! What charming visions of cool, gray-columned, green-canopied woods, of fresh, grassy, lilyed meadows, the poet's words invoke!

While the Wild Orange Lily prefers dry soil, the Wild Yellow Lily thrives best in moist meadows and low woods. It is a more lusty plant than the other, taller and more abounding in sap. The bell-shaped flowers, on the other hand, are smaller and less brilliant than those of *Lilium Philadelphicum*, as is apt to be the case with strong-growing plants. They droop on their stalks, while those of the other species are boldly erect. It is a more modest plant, though not less handsome, mayhap. The color of the petals is nearer a true yellow, the spots are more brown than purple.

The lily shares with the rose the honors of poetry and song. The injunction of the Master to "consider the lilies" has been well obeyed. Bards of every time and race have vied in singing the praises of these fairest flowers.

The Wild Yellow Lily grows over a wider territory than the Orange Lily, ranging farther both to North and South.

PLATE 86.

OX-EYE DAISY, WHITEWEED. *CHRYSANTHEMUM LEUCANTHEMUM*. (SUNFLOWER FAMILY.)

Herbaceous perennial; stems branching, leafy, slightly pubescent; root-leaves long-petioled, ovate-oblong, deeply lobed and toothed; stem-leaves alternate, sessile, clasping, lacinate-toothed; heads large, or long, naked peduncles; involucre of many imbricated bracts; rays numerous, white; disk-flowers yellow; achenes without pappus.



EVERYTHING depends upon the point of view. The flower that delights the eye of the painter and inspires the poet to Parnassian flights, is the detestation of the thrifty farmer. The Ox-Eye Daisy, so much admired by lovers of Nature, is the bane of every cultivated field wherein it gains a foot-hold. It is a hardy plant. When it can, it lives on the fat of the land, yet it will thrive in the poorest, least hospitable soil. Wordsworth, in a note to a poem on the Cave of Staffa, writes,—“Upon the head of the columns which form the front of the cave rests a body of decomposed basaltic matter, which was richly decorated with that large, bright flower, the ox-eyed daisy. I had noticed the same flower growing with profusion among the bold rocks on the western coast of the Isle of Man, making a brilliant contrast with their black and gloomy surfaces.”

The Ox-Eye Daisy, sturdy vagabond of field and roadside, is of the same genus as the aristocratic *Chrysanthemums* of gardens and conservatories. It is a handsome plant, 'tis true, but it owes much of its fame to being often taken for a humbler but more delicately-beautiful flower, the true English Daisy.



— 87 —

TURTLE-HEAD.

CHELONE GLABRA.

AUGUST.



— 88 —

LANCE-LEAVED LOOSESTRIFE.

STEIRONEMA LANCEOLATUM.

PLATE 87.

TURTLE-HEAD. CHELONE GLABRA. (FIGWORT FAMILY.)

Whole plant smooth or nearly so; stem erect or ascending, much branched, angled; leaves opposite, short-petioled, ovate-lanceolate, acute, sharply-serrate, bright green above, paler beneath, veiny; flowers in dense, terminal, bracted spikes; corolla tubular-campanulate, two-lipped, woolly in the throat; perfect stamens four, with a vestige of a fifth.

"The million-handed sculptor molds
Quaintest bud and blossom folds,
The million-handed painter pours
Opal hues and purple dye."—Emerson.



WHEN we dimly realize the innumerable forms and colors with which Nature diversifies the kindly mantle of vegetation that covers this ancient globe and hides its stern rock-masses, we must marvel at her unexhausted and inexhaustible fecundity. No two species, no two individuals, are fashioned just alike. Every blossom, every leaf, every twig has its special form and feature. Each petal has its peculiar hue, and no two colors are quite the same. The dyer who commands all the rain-bow tints that art has drawn from lifeless coal-tar, is resourceless as compared with "the million-handed painter."

In the autumn-season when the cicada shrills from yellowing willows and every scene and sound is suggestive of the passing of the year, we may make a new acquaintance at brooksides and in swamps. A fine plant, with dark green leaves and large, white, rose-tinged flowers in close spikes. This is the Turtle-head. The two-lipped corolla has an undeniable likeness to the head of a tortoise, with the mouth closed. It flowers in September and October.

PLATE 88.

LANCE-LEAVED LOOSESTRIFE. STEIRONEMA LANCEOLATUM. (PRIMROSE FAMILY.)

Stem erect, branching above, slender, one or two feet high, four-angled, smooth; leaves opposite, sessile or on short, winged, ciliate petioles, smoothish, oblong-lanceolate, acute at apex, veiny; flowers on slender, axillary pedicels; calyx deeply five-cleft; corolla rotate, five-parted, lobes toothed at apex.



OFTEN growing with the common Fringed Loosestrife is a more elegant species, the Lance-leaved Loosestrife. This is a plant of marshes and of low, fertile woods. It ranges from Canada to the Gulf of Mexico, and to Texas and Dakota in the West.

The true Loosestrifes are species of *Lysimachia*, but the *Steironemas* are so closely allied that the name may not unfitly be applied to them. All have yellow, fringed corollas, dainty and pleasant to the eye. They belong to a family famous for the elegant beauty of its members. The Primroses themselves, represented in this country by small, pink-flowered, rock-loving plants of the North, are, in Europe, among the most beautiful and most cherished of spring wild-flowers. In England two species are especially famous, the common yellow primrose, so dear to the people, and the fragrant cowslip. Then there are the glorious, many-colored Cyclamens, well-known to us in cultivation, natives of Southern Europe and the Levant. We have the odd and surpassingly beautiful Shooting-Star, sometimes called the American Cowslip, the curious Water-Feather with its swollen stems and the cunning little scarlet-eyed Pimpernel, naturalized from Europe.

PLATE 89.

PRINCE'S PINE, PIPSISSEWA. CHIMAPHILA UMBELLATA. (HEATH FAMILY.)

Stem erect from a slender creeping root-stock, leafy, smooth; leaves scattered or in whorls of four or five, thick, shining above, obovate-lanceolate, sharply serrate, acute at both ends; flowers few in a long peduncled corymb; petals five, pinkish; stamens ten, anthers purple.



HE *Chimaphila umbellata*, writes Thoreau in his journal of "Summer," under date of July 3, 1852, "must have been in blossom some time. The back of its petals, 'cream-colored, tinged with purple,' which is turned towards the beholder, while the face is towards the earth, is the handsomer. It is a very pretty little chandelier of a flower, fit to adorn the forest floor. Its buds are nearly as handsome. They appear to be long in unfolding."

The species of *Chimaphila*, near relatives of the wintergreen, belong, in the fitness of things, to America. They harmonize well with the peculiar life of our great forests. They would be out of place in England or in Egypt. A beautiful little plant is the Prince's Pine, worthy of its aspiring name. The dark, shining leaves,—"I do not know any leaf so wet-glossy," says Thoreau,—surmounted by the little cluster of pink-purple flowers, make a singularly elegant combination.

The Prince's Pine, or let us call it by the Indian name, Pipsissewa, is found over the whole breadth of North America from the Atlantic to the Pacific, equally at home in the forests of the East and of California. *Chimaphila* means "winter-loving;" the leaves are evergreen.

PLATE 90.

CALOPOGON. LIMODORUM (CALOPOGON) TUBEROSUS. (ORCHIS FAMILY.)

Glabrous perennial; stem slender, simple, erect from a small bulb, bearing one or two sheathing scales at base, and a single foliage leaf; leaf linear-lanceolate, parallel-veined, acute at both ends; flowers few in a bracted raceme at the summit of the scape, very irregular, pink and purple.



E have many beautiful orchids in North America, even outside the tropics. These northern orchids do not grow on the limbs of trees, but out of the ground as if they were ordinary plants. However, a look at the flowers is enough to satisfy us that ordinary plants these are not.

Perhaps the finest of our native Orchidaceæ is the Calopogon. It has no graceful foliage to enhance its charms. The single grass-like leaf, is easily overlooked. It is a plant of "flowers par excellence, all flowers, naked flowers." But the rare beauty of the blossoms makes anything else unnecessary. The rich, delightful rose-purple is accentuated by the vari-colored hairs with which the lip is "bearded." It is royally lovely. The sight of the Calopogon blowing in grassy meadows impresses the most indifferent beholder, and is remembered ever after with a thrill of pleasure.

Limodorum tuberosus is a denizen of wet meadows and marshes throughout Eastern North America. It is a common plant in the East, but westward becomes quite scarce. In the South there are two or three kindred species, adorning the pine-barren swamps. The flowers are sometimes faintly fragrant.



— 89 —

PRINCE'S PINE, PIPSISSEWA.
CHIMAPHILA UMBELLATA.



— 90 —

CALOPOGON.
LIMODORUM (CALOPOGON) TUBEROSUS.

PLATE 91.

WILD LILY-OF-THE-VALLEY. UNIFOLIUM (SMILACINA) BIFOLIUM. (LILY FAMILY.)

Stems simple, unbranched, erect from a creeping, scaly rootstock, glabrous, terete, zig-zag; leaves two or three, petioled, broadly ovate, or reniform, acute; flowers small, short-pedicelled, in a terminal, minutely bracted raceme; sepals four, reflexed, white; stamens four; fruit a reddish berry.

"The Naiad-like Lily of the Vale,
Whom youth makes so fair and passion so pale,
That the light of its tremulous bells is seen
Through their pavilions of tender green."—*Shelley*.



THE Lily-of-the-Valley (*Convallaria*), so common in Europe, is very rare in America. It grows wild in the Blue Ridge and Alleghany Mountains. We have a little plant in our northern woods which is not unlike the true Lily-of-the-Valley, but which lacks its fine attribute of fragrance. It is the *Unifolium*.—Like so many of the Lily Family it has a delicate, almost fragile, beauty. There is almost always a certain exquisite refinement of form in the lilies.

The Lily-of-the-Valley signifies "the return of happiness." We may well transfer the significance to our plant, that opens its tiny white blossoms to the balmy breezes of May, sign that winter's icy reign is at an end.

The *Unifolium bifolium* is a native of Europe as well as of North America. It is found only in northern latitudes, or on high mountains. With us it is common in fertile, mossy woods northward and on wooded mountain summits in the South. It is one of our many wild-flowers which have not an English name. That of "Wild Lily-of-the-Valley" would be appropriate.

PLATE 92.

PASQUE-FLOWER. PULSATILLA HIRSUTISSIMA. (CROWFOOT FAMILY.)

Perennial, whole plant hairy; stems clustered, rising from a short, woody rootstock, villous with long, silky hairs; root-leaves petioled, pinnately parted and cleft; stem leaves smaller, sessile, flowers larger, solitary at the summit of the stem; sepals usually six, purple; stamens numerous; carpels furnished with long, plumose tails.

"When trellised grapes their flowers unmask,
And the new-born tendrils twine,
The old wine darkling in the cask
Feels the bloom on the living vine."—*Emerson*.



NE fancies, in the spring-time, that not only the tree-trunks with the streams of sap coursing through their trunks, not only the bursting buds and the up-springing flowers, but even the hard rocks, the soil, water, everything, is pulsating with life. Nature, in her protracted silence, has gathered strength for a new song.

While the hepaticas, spring-beauties and violets are putting forth their tender blossoms to adorn the eastern woods the western prairies are glowing with their own flowers. It is as if the sky had fallen upon them, they become sheets of blue. It is the blossoms of the pasque-flowers, newly opened, that at Easter-tide deck the landscape. Like daisies in English meadows they spread over the broad expanse of plains.

The *Pulsatilla* has a large blossom. In color it is a delicate purplish-blue. It is much like the flowers of some cultivated species of *Clematis*. The flowers are succeeded by heads of seeds with long, silky, silvery-white tails, like those of the Virgin's Bower.



— 91 —

WILD LILY-OF-THE-VALLEY.

UNIFOLIUM (SMILACINA) BIFOLIUM.

MAY—JUNE.



— 92 —

PASQUE FLOWER.

PULSATILLA HIRsutissima.

MAY—JUNE.

PLATE 93.

COLUMNAR CONE-FLOWER. *RUDBECKIA COLUMNARIS*. (SUNFLOWER FAMILY.)

Root simple, stout; stems clustered, branched, angled and striate, rather minutely appressed-pubescent; leaves pinnate with linear or lanceolate, narrow leaflets, the lower petioled, the upper sessile; heads on long peduncles; receptacle cylindrical or columnar; rays not numerous, reflexed, yellow or purplish, much longer than the narrow involucre bracts.



THE most beautiful European wild-flowers make their homes in hedge-rows and waysides. So thickly settled are many parts of the Old World that the flowers must needs find room in the corners and bye-ways. Here, on the contrary, they have the range of great forests and boundless plains. Hence they are slier than their transatlantic cousins. Instead of coming boldly out into villages and towns and exhibiting their charms to all the world, they seek homes in woodland solitudes and lonely vales.

America has preserved a fine forest-flora and a no less varied prairie vegetation. Among the characteristic plants of the plains, two great families are predominant. The Pea Family contributes the lupines, vetches, lead-plants, prairie-clovers. The Sunflower Family is represented by the golden rods, asters, blazing-stars, coreopsis, sun-flowers and cone-flowers.

Of these last, the Columnar Cone-flower is one of the prettiest and most showy. The long cylindrical disk and the drooping rays give an odd look to the heads. The rays are sometimes crimson-spotted or even entirely crimson, much like those of the Texan *Coreopsis tinctoria*. The Columnar Cone-flower grows from Minnesota south to Texas.

PLATE 94.

AMERICAN SEA-ROCKET. *CAKILE EDENTULA* (AMERICANA). (CRESS FAMILY.)

Smooth, succulent annual; stems erect or ascending, bushy-branched; leaves alternate, obovate or spatulate, obtuse at apex, tapering into short petioles, margin undulate or obscurely dentate; flowers short-pedicelled in long, zig-zag racemes; petals four, pale pink; pods fleshy, two-jointed.



AN interesting class of plants are those that inhabit beaches and salt-marshes along the coast. They are rarely handsome plants. They are apt to have clumsy, fleshy stems, swollen joints and inconspicuous pinkish, white or green flowers. They are usually scraggly and misshapen, with a weather-beaten look. None the less, they are full of interest for the observing. They are excellent illustrations of the effect of environment on organisms. Their mode of growth is such that they offer the least possible resistance to assailing winds. Their fat and rugged stems, full of sap, possess almost inexhaustible vitality. They usually contain more or less salt, absorbed from the briny soil in which their roots are fixed. Wonderful is the power of some plants to select

certain minerals, present in minute quantity, from the soil, for use as building material. Just as the mollusc takes carbonate of lime from sea water for its shell, or the coral-polyp for its stalk, so some plants absorb various salts which they put to use in their domestic architecture. Some, like horsetails and grasses, strengthen the exterior of their stems with silica. Certain maritime plants take in much iodine and bromine,—elements invaluable to the photographer. *Cakile Edentula*, a plant of the northern sea-coast absorbs more or less chloride of sodium, common salt.



— 93 —

COLUMNAR CONE-FLOWER.
RUDBECKIA COLUMNARIS.
 JULY.



— 94 —

AMERICAN SEA ROCKET.
CAKILE EDENTULA (AMERICANA).
 JULY.

PLATE 95.

SERVICE-BERRY, SHAD-BUSH. AMELANCHIER BOTRYAPIUM. (ROSE FAMILY.)

Shrub or small tree not exceeding ten feet in height, with gray bark; leaves alternate on rather long petioles, oblong ovate, rounded or somewhat cordate at base, mucronate at apex, serrate, bright green and smooth above, pale and pubescent beneath; flowers in short racemes, appearing before the leaves; petals five, oblong, white.

"When the sun-light fills the hours,
Dissolves the crust, displays the flowers"—



ONE of the first American shrubs to leap into bloom is the Shad-bush. It is a novel sight, that of a Shad-bush covered with its gay white blossoms while the sluggard leaves are still sleeping snugly in their blankets. The Amelanchier just as its flowers begin to blow is the most showy object in the spring woods. Most of the early spring flowers are shy, low-growing herbs, nestling under banks or among the roots of trees. But the brave Shad-bush flaunts its white banners high among the other shrubs of the forest. Often it attains the dignity of arboreal height. When summer is at its prime, when the fine, bright green foliage of the Shad-bush is well-developed, it still has its glories, for then it is covered with bright red berries, beautiful berries, and of such a delightful, piquant flavor! There is something "woody," suggestive of out-of-doors about the taste of the service-berries.—"services," they call them in the Southern Mountains. There they are much esteemed for preserves. Whole families, armed with axes, go out on the hillsides for "services." The trees are ruthlessly cut down to get the fruit.

PLATE 96.

TRICOLORED GILIA. GILIA TRICOLOR. (PHLOX FAMILY.)

Annual, pubescent; stem erect, branching from near the base, terete; leaves alternate, the lower petioled, the upper nearly sessile, pinnatifid, segments narrowly linear; flowers few in dense, cymose clusters at the ends of the branches; corolla rather large, funnel-shaped, tube narrow, limb five-cleft; stamens five, borne on the corolla.



GROUPS of plants peculiar to America, which are of the New World only, appeal to us, much as when we enter an Indian encampment and look upon the faces of Iroquois or Seminoles. So with Gilia. This great genus of beautiful plants is entirely confined to North and South America, mainly to the former continent. It is one of the Phlox Family, the other members of which are largely American, too. All the handsome Phloxes with their white, pink, crimson, purple or blue corollas are aboriginal. Most of the Gilias are natives of the southwestern States.

Gilia tricolor belongs to California, and is found over pretty much the whole of that state straying northward. It is a surpassingly beautiful little plant, perhaps the handsomest though not the showiest of the genus. The corolla is of three shades, which contrast with each other admirably. The tube is bright yellow; there is a band of rich, velvety purple in the throat and the border is of a clear lilac tint.

One of the most gorgeous of American plants is Gilia coronopifolia, the only species growing wild east of the Mississippi. It has narrow, tubular flowers of a vivid scarlet, and finely dissected leaves.



— 95 —

SERVICE BERRY, SHAD-BUSH.

AMELANCHIER BOTRYAPIUM.

MAY.



— 96 —

TRICOLORED GILIA.

GILIA TRICOLOR.



— 97 —

SCARLET HONEYSUCKLE, TRUMPET HONEYSUCKLE.

LONICERA SEMPER-VIRENS.

MAY TO OCTOBER.



— 98 —

BUNCH-BERRY.

CORNUS CANADENSIS.

MAY.

PLATE 97.

SCARLET HONEYSUCKLE. TRUMPET HONEYSUCKLE. LONICERA SEMPERVIRENS.
(HONEYSUCKLE FAMILY.)

Somewhat woody; stems climbing, almost herbaceous towards the summit; leaves opposite, the lower petioled, upper sessile, uppermost with connate bases, ovate, short-mucronate, glaucous beneath; flowers in approximate whorls at the summit of the stem; corolla tubular, lower part narrow, upper comparatively open.

"And bid her steal into the pleached bower,
Where Honeysuckles, ripened by the sun,
Forbid the sun to enter;—like favorites
Made proud by princes, that advance their pride
Against that power that bred it."—*Shakespeare.*



HE honeysuckles have ever been great favorites. A rustic cottage with latticed porch o'ergrown with honeysuckle is the poet's ideal abode of contented peace. The heroines of poesy are always to be found in bowers of roses and honeysuckle. It entertains as its especial guests the humming-bird by day and the sphinx-moth by night.

While the common cultivated honeysuckles, *Lonicera Caprifolium* and *Lonicera Japonica*, are admired for their entrancing fragrance, the Scarlet Honeysuckle, one of the handsomest and showiest of the genus, is wanting in perfume. Its long scarlet corollas have a pale yellow lining. In Nature, as in Art, vermilion seems a costly dye. When bestowed upon a flower, it paints usually only the outside of the corolla, the inner surface being dipped in a less regal hue. The Scarlet Honeysuckle ranges from Southern New England, southward and westward, but strays northward. It is most abundant in the mountains, flowering in early summer.

PLATE 98.

BUNCH-BERRY. CORNUS CANADENSIS. (DOGWOOD FAMILY.)

Suffrutescent; stems less than a foot high, almost herbaceous, from slender, creeping, woody rootstocks; foliage leaves opposite, crowded at the summit of the stem so as to simulate a whorl; flowers small, greenish-white, in a capitate cluster with an involucre of four white leaves.



WHEN Spring has yielded her sceptre to young Summer, and glorious June has come glowing with life and passion, the deep, cool woods shelter some flowers that breathe the spirit of an earlier month. Such is the Bunch-berry, which opens its small greenish flowers in the midst of four white leaves that look like petals. This smallest of our dogwoods may be met with

"In its lone and lonely nook
On the mossy bank."

almost anywhere in moist Northern woods, and in the higher mountains southward. It is like a reproduction in miniature of its showy cousin, the Flowering Dogwood, that brightens our woods with its arboreal snow-drifts in early spring. To those who are not in the secret, its stems seem to bear but a single large flower above the circle of leaves. But if we examine this apparently solitary blossom we will find that there is really a dense cluster of tiny flowers, each with its own corolla. The four large white "petals" are really not petals at all, but bracts. In late summer a little "bunch" of brilliant scarlet berries renews the beauty of the plant, hence the popular name.



— 99 —

WAVY-LEAVED ASTER.

ASTER UNDULATUS.

JULY.



— 100 —

LONG-LEAVED STARWORT, STITCHWORT.

STELLARIA LONGIFOLIA.

JUNE.

PLATE 99.

WAVY-LEAVED ASTER. *ASTER UNDULATUS*. (SUNFLOWER FAMILY.)

Rootstock short, woody; stem erect, much branched, rather minutely hoary-pubescent, as are the leaves, often four feet high; root leaves long-petioled, ovate, cordate, crenate; lower stem-leaves on winged petioles, upper sessile and clasping, entire; heads racemously disposed on the branches, forming a large, terminal panicle, rather small.



T often seems as if the flowers were glad to be alive. Bryant felt this when he wrote—

“Have ye no joy of all your bursting buds,
And fragrant blooms, and melody of birds
To which your young leaves shiver?”

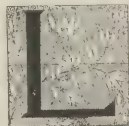
Is there any one who has watched the Venus' Fly-Trap imprisoning in its wondrous grasp some wretched little insect, who can avoid a sense of a cruel intelligence in the plant? And in the autumn, when we look into the faces of the Asters that bow to us so trustfully as we pass,—are they mere masses of senseless vegetable tissue, in no way in touch with the soul of the Universe?

Of the Asters, the wavy leaved Aster is one of the earliest to flower. In the South it has unrolled its azure rays and has begun to open its yellow disk flowers before the end of August. In September it is well out everywhere. The color of the strap-shaped rays is a clear light blue, without the purple tinge the Aster flowers usually have. The disk-flowers are yellow when they first open, but soon deepen to a rich purple-red that harmonizes admirably with the cerulean rays. *Aster undulatus* is a plant of dry soil, preferring rocky thickets and hillsides.

PLATE 100.

LONG-LEAVED STARWORT. STITCHWORT. *STELLARIA LONGIFOLIA*. (PINK FAMILY.)

Quile smooth; stems erect or nearly so, widely branching, very slender; leaves opposite, sessile, linear, acute, mid-vein rather prominent; flowers on slender pedicels, in a bracted cyme; petals five, two-painted, white, longer than the sepals; stamens ten.



LONG-LEAVED STARWORT dwells in moist grassy meadows and in bogs, in the northern part of North America. It has not been found south of the Middle States. It often grows with the Small Bedstraw and the Marsh Bellflower. Like these, it has small white flowers, and weak, often roughened, stems that recline on the grasses or other plants among which it grows. The tiny white stars open in midsummer. The Long-leaved Starwort or Stitchwort, as it is often called, is a near relative of the little chickweed that is such an inveterate pest in gardens. The most showy of our native species is *Stellaria Pubera*, a denizen of rocky woods, which has large white flowers with dark anthers. The Starwort is a token of “Afterthought.”

The Starworts are of a group of weed-like plants with small, insignificant flowers that belong to a family renowned for the splendor of its often exquisitely perfumed blossoms. The species of *Lychnis*, *Dianthus* and *Silene*,—the Cocksles, Pinks and Catchflies,—are the showiest of plants. It is a striking instance of the unexpected relationships that careful study brings to light,—that of the royal Carnation and the humble Stitchwort. It is but a step from the homely to the beautiful, from the lowly to the proud.



— 101 —

BLACK MEDICK.

MEDICAGO LUPULINA.



— 102 —

PURPLE FRINGED ORCHIS.

HABENARIA FIMBRIATA.

PLATE 101.

BLACK MEDICK. *MEDICAGO LUPULINA*. (PEA FAMILY.)

Fibrous-rooted annual; stems from procumbent to almost erect, much-branched, hirsute; lower leaves on long, upper on short petioles, trifoliate; leaflets broadly orbicular or obovate, emarginate, dentate; flowers in cylindrical heads; corolla small, pale yellow; pod reniform, wrinkled, almost black.



THE grassy roadsides, from early summer to frost, an inconspicuous, usually prostrate, plant with small heads of yellow flowers may be noticed. It has trefoil leaves, and we take it for a yellow-flowered clover. But is it? Let us examine the tiny, roughened, black seed-pods. They are quite different from those of the clover. No, this is the Black Medick, sometimes known as "None-such," a near relative of the clovers. It has come from the Old World, perhaps with clover-seed, and is now thoroughly at home in a great part of North America. It is especially widespread on the Atlantic Coast.

The name Medick is an anglicization of the botanical name *Medicago*, said to be derived from *Media*, the home of one of the species. Our plant is called Black Medick, because of the color of its pods. The proud title of None such it owes to its reputation in Europe as a forage plant. It is not used for that purpose here, though its relative, the Lucerne or Alfalfa (*Medicago sativa*), is coming into favor in that regard. The lucerne is an erect, handsome plant, with bright green foliage and clusters of showy purple flowers, quite unlike its poor relation, the humble none-such.

PLATE 102.

PURPLE FRINGED ORCHIS. *HABENARIA FIMBRIATA*. (ORCHIS FAMILY.)

Whole plant smooth; roots clustered, fibrous, thickened; stem tall, strict, leafy, with a few sheathing scales at base; leaves ovate-lanceolate, obtuse, clasping, parallel-veined; flowers in a terminal, bracted raceme, large, purple; lips stalked, three-parted, deeply fringed; spur quite long.



HERE is a pleasure in finding one of our shy orchids unfelt with any other plant. What a "dear, delicious thrill" it gives one to come upon a lady's-slipper in the forest depths, or a meadow bright with calopogons? These flowers are always strange to us, though we may have gathered them year after year, though we may have studied their minutest cell. They are not near to us as the rose and lily are. They are apart, unfamiliar, almost uncanny.

None of the orchids of temperate North America make a finer show than the Purple Fringed Orchis. It is superb, as it rises from meadow or bog. "Why does it grow there only," asks Thoreau, "far in a swamp, remote from public view?" It is somewhat fragrant, reminding one of the lady's slipper. Is it not significant that some rare and delicate and beautiful flowers should be found only in unfrequented wild swamps? Yet this, surely, is not a fault in the flower. A beautiful flower must be simple, not spiked. It must have, like this, a fair stem and leaves.

The flowers of the Purple Fringed Orchis are of a lovely lilac hue, the large lip delicately fringed. It grows from Canada south to North Carolina.



— 103 —

BLANKET FLOWER.
GAILLARDIA AMBLYODON.



— 104 —

WATER KNOTWEED.
POLYGONUM AMPHIBIUM.

JULY

PLATE 103.

BLANKET-FLOWER. GAILLARDIA AMBLYODON. (SUNFLOWER FAMILY.)

More or less hairy annual; stem erect, slender, round, not exceeding two feet in height, sparingly branched; leaves alternate, clasping, auriculate at base, oblong or ovate, sparingly toothed or entire, midrib rather prominent; heads large, solitary, terminating the branches, with numerous brownish rays about one inch long.



It is difficult to realize the great diversity of the North American flora until one becomes a traveler and explorer. A journey of a few hundred miles in any direction brings one into the midst of an entirely new plant-life. If we start from Hudson's Bay or the coast of Labrador, where the vegetation is essentially Arctic, we will encounter a different set of plants in Canada and the Northern States, another along the Atlantic Coast, a fourth in the Appalachian region, a fifth in the pine-barren country of the Gulf States, and a distinctly tropical flora in Southern Florida. Westward we will find that the Mississippi Valley has its peculiar plants, so has the Plains region, and Texas, and the Rockies and the Pacific Coast. What flower can at once blossom under the shadow of a snow-clad peak and in the torrid sands of New Mexico? As well might Norway and Southern Italy try to agree on the same floral emblem!

Two great families that dominate the landscape of the prairies are the Grass Family and the Sunflower Family. To the last belong the handsome Gaillardias. These are, like most of the proper prairie flowers, exceedingly showy. The rays are of a fine shade of maroon, a color that often occurs among the western composites. The appearance of the bright-colored heads makes one think of them as sunbeams caught and held to earth for a space.

PLATE 104.

WATER KNOTWEED. POLYGONUM AMPHIBIUM. (BUCKWHEAT FAMILY.)

Stems branching below, creeping in mud or water, rooting at the joints, erect or ascending and unbranched above; leaves alternate on long petioles from membranaceous sheaths, ovate-oblong, obtuse, smooth, rounded or heart-shaped at base; flowers in terminal, spike-like racemes.

"Rosy Polygonum, lake-margin's pride."



EMERSON paints the Water Knotweed with one stroke of his skillful brush. No multiplication of adjectives could serve to indicate better the appearance and habit of this pretty aquatic. They are fascinating plants, these water growers. In the sweltering heat of the dog days, how one envies them their cool, delightful home. See how yonder pond-weed and spearwort wanton in their perennial bath. These do not content themselves with a short plunge, only to emerge again into the blistering air. They revel in a constant wetness, needing no rain or dew to refresh them. In winter their roots find snug, unfrozen hiding-places in the soft mud of pond or stream.

The Water Knotweed is a common enough plant throughout the North Temperate Zone. Not only in North America is it at home, but in Europe and in Asia. With us it is most abundant in the North, being rarely met with south of Maryland and the Ohio Valley. The lower part of the stem creeps in mud or sand under the water, like the rootstocks of the water-lily. The upper part, bearing the smooth green leaves and the spikes of crimson blossoms, rises above the surface.

PLATE 105.

BLOOD-ROOT. SANGUINARIA CANADENSIS. (POPPY FAMILY.)

Acaulescent perennial with orange-red juice; rootstock short, thick, usually branching; leaves on long petioles, broadly reniform, deeply lobed, lobes usually seven, glaucous, especially beneath; flowers solitary long-peduncled; sepals two, soon falling; petals numerous, oblong, pure white; stamens many.



IN the open, leafless woods of April, in the North, but southward as early as March, one of our most beautiful wild-flowers—the Sanguinaria—greets the wanderer. Out of the rich leaf-mould, on separate stalks, spear-shaped leaf buds and conical flower buds shoot up. The latter open first, into white corollas of several petals, guarding a golden heart of stamens. The leaves unfold more slowly. They are odd leaves, prettily lobed, and covered with a glaucous bloom. Flowers more chaste than those of the blood-root, the all-beholding sun does not gaze upon. They are stainless, without trace of the black mould which gives them birth. Dark decay is transformed to unsullied purity!

The Blood-root has a red juice which flows if the plant be wounded; hence the name, Sanguinaria.

"Sanguinaria, from whose brittle stem
The red drops fall like blood,"—

wrote Bryant. One feels a guilty sense of having murdered a living thing, when he plucks the blood-root. The thick rootstock is full of the vital fluid. This orange-red juice abounds in the Poppy Family, though not usually of so vivid a color as in the Sanguinaria. It is very acrid to the taste. The rootstock was formerly much valued in medicine. Ours is the only species of Sanguinaria.

PLATE 106.

BUR-MARIGOLD. BIDENS LAEVIS (CHRYSANTHEMOIDES). (SUNFLOWER FAMILY.)

Whole plant glabrous; stem erect, sometimes four or five feet high, branching, angled; leaves opposite, sessile, oblong-lanceolate, coarsely serrate, acuminate, rather thin, bright green; heads large, terminating the branches; involucre of numerous bracts; rays eight or ten, broadly ovate, bright yellow.



ALMOST all the burs are produced by late summer or autumn flowers. Mayhap it is then that the struggle for existence is fiercest and the necessity for scattering the seeds is greatest. Besides the Sweet Cicely and the Wild Comfrey, one can recall very few spring flowers that have prickly or otherwise bur-like fruit. Among the commonest and most persistent of the fall weeds that attach their seeds by means of hooks or barbs to our clothing and to the hair of animals, are the Spanish Needle, *Bidens bipinnata*, and the Stick-tight, *Bidens frondosa*. These are unsightly plants, the yellowish flowers being borne in rayless heads. But a near relative, *Bidens laevis*, is one of the showiest autumnal flowers of ditches and bogs. Its large heads are circled by bright, golden-yellow rays. These, with the smooth, fresh green leaves give it an air of elegance. It is not a very common plant, and is thus prevented from becoming the nuisance that its vulgar congeners are. The Bur-Marigold is so called because of its resemblance, at a distance, to the yellow-flowered Marsh-Marigold, whose place it takes in the autumn flora. The Latin name, *Bidens*, refers to the *teeth* or awns of the seeds, usually *two* in number.



— 105 —

BLOOD ROOT.

SANGUINARIA CANADENSIS.

MAY.



— 106 —

BUR MARIGOLD.

BIDENS LEVIS (CHRYSANTHEMOIDES).

JULY.

PLATE 107.

CAMASS, WILD HYACINTH. CAMASSIA ESCULENTA. (LILY FAMILY.)

Scape naked, rising from a rather large, scaly bulb; leaves clustered at the base, long, linear; flowers few in a bracted raceme, large, on rather long pedicels; sepals six, lanceolate, acute, deep blue; stamens six; fruit an obovate, three-celled capsule.



ONE of the best known and most often described of English wild-flowers is the common Wild Hyacinth or Bluebell, *Scilla non-scripta*, an imitation, so to speak, of the cultivated *Hyacinthus orientalis*. It is an exquisitely fragrant plant, beloved of the poets. Keats sings of the

"Shaded Hyacinth, always sapphire Queen of the Mid-May."

We have no true *Scilla*, but our *Camass* is a closely related plant, much like the Wild Hyacinth of England in appearance, though lacking its delightful perfume. Many of our plants are unfragrant, while their Old World cousins are deliciously odorous. But we may console ourselves with the reflection that there are peculiar perfumes among our flowers, all our own. The incense of the Sweet Pepperbush (*Clethra*), for instance, is strictly American.

The Esculent *Camass* is a plant of the northwestern prairies. Its superb, dark blue flowers are among the floral wealth of the prairies.

The name *Quamash* or *Camass* is of Indian origin. It is always pleasant to come across plants with Indian names. They are almost sure to be melodious and suggestive. They prove that long before the pale faces ever saw the wild-flowers of our country, the red men knew and loved their graceful blossoms.

PLATE 108.

SPURREY. SPERGULA ARVENSIS. (PINK FAMILY.)

Annual; stems clustered, much branched, ascending, pubescent; leaves narrowly linear, in whorls; flowers on slender, hispid pedicels, in minutely-bracted, terminal, dichotomous cymes; sepals five, pubescent; petals five, white, not longer than the calyx; stamens usually ten; pod short ovoid, somewhat excreting the calyx.



THE place to see European weeds," writes Burroughs, "is in America. They run riot here. They are like boys out of school, leaping all bounds." The reason for this is that in Europe so much of the land is cultivated that the weeds are pent up in corners. They are rigidly kept down, and prevented from spreading into the fields. They are like children under a taskmaster's eye, longing for the woods and the meadows. But when they have established themselves here they have the whole continent to roam over. Their energies, long confined, burst forth and defy all discipline. They break through every restraint and spread hither and yon, often into cultivated fields, little fearing the slovenly attacks that are apt to be made upon them.

The Spurrey is one of these fast-spreading Old World plants. In a comparatively short time it has been sown broadcast in the Atlantic Coast region, often extending far inland. It is an inconspicuous plant, yet it is not wanting in beauty for those who care for more than the showy loveliness of large flowers. The narrow, clustered leaves and the white petals have a certain delicacy about them, as if the Spurrey had seen better days—had been born to something better than a tramp life.



— 107 —

CAMASS, WILD HYACINTH,
CAMASSIA ESCULENTA.



— 108 —

SPURREY.
SPARGULA ARVENSIS.

PLATE 109.

TALINUM. TALINUM TERETIFOLIUM. (PURSLANE FAMILY.)

Stems clustered, rising from a short, thick rootstock, scaly with the vestiges of fallen leaves; leaves clustered near the base, fleshy, narrow, rounded terete by the involuted margins; flowers in minutely bracted, long-peduncled cymes; petals five, pale pink, fugacious; stamens numerous, capsule three-celled.

"Scarce less the cleft-born wild-flower seems to enjoy
Existence, than the winged plunderer
That sucks its sweets."—Bryant.



DOES not the Columbine or saxifrage, that strikes its roots into crevices in the living rock and expands its flowers in the open air, revel in its life? How their buds leap from the narrow prison-house into the glad sun-light! These cliff-dwellers are like ships riding at anchor with sails spread,—one fancies they chafe for freedom.

Talinum teretifolium is a close ally of our pretty little Spring-beauties, as well as of that much-maligned garden-weed, the purslane. It is, oddly enough, confined to serpentine rocks, fixing its rootstock in what scanty soil has collected in their clefts. It grows there only perhaps because the rock in decay supplies just the food needed by the plant. It expands its handsome, rose-purple flowers under the influence of the hottest sunshine, in which it seems to gladden. The flowers last but a short time. They pay the price of speedy death for over-indulgence in light and warmth. It obeys the stern law of compensation. Flowers that open in cool shades last the longest.

PLATE 110.

THREE-LEAVED GINSENG. ARALIA TRIFOLIA. (GINSENG FAMILY.)

Plant low, perennial; stem simple, erect, slender, weak, rising from a hard, rounded tuber; leaves three in a whorl, long petioled compound, leaflets three to five, oblong or oblanceolate, sharply serrate; flowers small, white, in a long-stalked umbel, succeeded by a few greenish-yellow berries.

"The rose that lives its little hour
Is prized beyond the sculptured flower."—Bryant.



THE poet might have used the pigweed or the shepherd's purse for his comparison. Art is long, but Nature is eternal. All the masterpieces of sculptor or of painter are as naught compared with the humblest living animal or plant. The former are the phantom work of brush and chisel. The latter is molded by an enginery universal as space, patient as time! The tiny flowers of the Ginseng are worth more than all the fluted columns of the Parthenon. These are beautiful with the beauty of mere ornament. But those possess the higher beauty of breathing, responsive adaptation; they have learned in the school of experience to parry their every enemy, to strengthen all helpful ties.

The Three-leaved Ginseng is often met with in rich low woods. The cluster of small white flowers appears in April or in May. They are followed by a few small greenish berries, very disappointing to one who has seen the brilliant scarlet fruit of the Five leaved Ginseng. The small round tuber, deep in the ground, has a biting taste, but not the warm, pleasant flavor of the other species. The Three-leaved Ginseng is common in Eastern North America.



— 109 —

TALINUM.

TALINUM TERETIFOLIUM.

JUNE.



— 110 —

THREE-LEAVED GINSENG.

ARALIA TRIFOLIA.

MAY.

PLATE III.

ENCHANTER'S NIGHTSHADE. *CIRCÆA ALPINA*. (EVENING-PRIMROSE FAMILY.)

A small plant with slender creeping rootstocks, usually stoloniferous; stem weak, erect, branching; leaves opposite, long-petioled, thin, coarsely toothed, acute at apex, rounded or cordate at base; flowers few, long-pedicelled, in terminal racemes, small; petals two, white; fruit hispid, on reflexed pedicels.



IN the aforetime, when beings from another world deigned to visit the Earth, and men held converse with good and evil genii, various herbs and simples served those who dealt in magic. Some plants had powers for good, others for ill. The witch kept her caldron aboil with weeds gathered in forest and fen. The enchanter culled potent herbs by the light of the moon wherewith to bless or blast. Both the Latin and the English name of the *Circæa* would indicate its use in sorcery. Erasmus Darwin has a note to his "Loves of the Plants" in which he mentions this tradition. Circe was the beautiful witch who well-nigh lured the wandering Ulysses from his plighted faith to Penelope.

Circæa Alpina is a small, delicate plant of deep, moist woods, common northward, frequent on the higher mountains of the Southern country. It has small white flowers, with a little pink in them. The fruit is covered with soft, curved prickles, and acts as a bur. It flowers in early summer. One would hardly look for this plant among the relatives of the Evening Primrose and the showy Willow-Herb, yet with them it justly claims alliance. It is native in Europe as well as in this country.

PLATE II2.

HAWK-WEED. *HIERACIUM VENOSUM*. (SUNFLOWER FAMILY.)

Perennial; roots fibrous, clustered; stem erect, nearly smooth, much branched, bearing only a few small, bract-like leaves; root-leaves broadly oblong or obovate, short-petioled, hairy, veins conspicuous, purple; heads numerous at the ends of the branches; flowers bright yellow, all ligulate.



HAWKWEEDS are to the European botanists what the Asters are to ours. There are almost innumerable species and varieties in the Old World, grading into each other in almost inextricable confusion. In North America we have quite a number of species, both in the East and in the West, but by no means the diversity that perplexes the transatlantic student of botany.

Hieracium Venosum is the earliest to flower of our eastern Hawkweeds. The heads of clear yellow, strap-shaped flowers open in May in the South, in June further northward. The leaves are mostly clustered at the root, lying flat on the ground. They are rather large and quite hairy. The veins are dark purple, giving an odd and very pleasing aspect to the leaf.

The Veiny Hawkweed is a plant of open hillside woods and clearings, preferring a dry soil. The heads expand in the early morning, but close in the heat and glare of mid-day. Those who take their walks late in the day miss these golden flowers. This species is sometimes called Rattlesnake-weed, being one of the innumerable reputed remedies for the poison of snake-bites.



— 111 —

ENCHANTER'S NIGHTSHADE.

CIRCÆA ALPINA.

JULY.



— 112 —

HAWK-WEED.

HIERACIUM VENOSUM.

AUGUST.



— 113 —

AMSONIA.

AMSONIA TABERNAEMONTANA.



— 114 —

TWISTED STALK.

STREPTOPUS ROSEUS.

PLATE II3.

AMSONIA. AMSONIA TABERNÆMONTANA. (DOGBANE FAMILY.)

Perennial; stem one to three feet high, smooth except when quite young, terete; leaves alternate, from ovate or oblong to linear-lanceolate; flowers in a terminal cymose panicle; calyx small; corolla dull blue, salver-shaped, tube short, limb five-lobed; fruit two slender pods.



NEAR relation of the familiar dog-bane is the Amsonia, native of the Southern States, extending northward only as far as North Carolina east of the Alleghany Mountains, but coming up as far as Indiana and Missouri in the West and straying northward. It is an erect plant, rather a rank grower. The stems usually rise in clusters, in open places in woods, generally near water,—thus often telling a wayfarer that a spring is not far off. The flowers are rather small. The color is a singular pale and almost livid blue, a shade not often met with in flowers. On the whole it is rather a handsome plant, though one is more apt to think of it as odd and piquant than as pretty. The blossoms open in May or June and are succeeded by two long narrow pendant pods. The stem contains a milky juice like that of the allied family, the Milkweeds.

The flowers of the Amsonia illustrate the arithmetic which Emerson had in mind, when he asked,

“Why Nature loves the number five,
And why the star-form she repeats.”

For it is true that the parts of the flower are more apt to be in fives than in any other number. There is no very apparent reason for this, unless five petals can be wrapped more cosily about the sensitive organs of the flower in the bud than four or six.

PLATE II4.

TWISTED STALK. STREPTOPUS ROSEUS. (LILY FAMILY.)

Stem tall, erect from a short rootstock, branching; leaves ovate or oblong, acute, parallel-veined, clasping at base, green on both sides, margins ciliate; flowers on slender axillary pedicels, which are bent near the middle; perianth-segments six, purplish.

“I saw the bud-crowned Spring go forth,
Stepping daily onward North.”—Emerson.



As we follow the march of the budding season, from Georgia to beyond the Great Lakes, we will find in moist mountain woods in the South and everywhere in the deep forests of the Northern parts, an odd, lily-like plant. It has forking, zig-zag stems, with a clasping, bright-green leaf at every angle. The blossoms are small. They are almost concealed by the leaves as they hang on their stalks from the under-side of the stem. In color they are pink-purple, a delicate shade. They are distinctly pretty flowers, small though they be. The peculiarity is in the stalk, which is bent or somewhat twisted, hence the significance of the plant's scientific and popular names. *Streptopus* is from two Greek words, meaning “a twisted foot.”

The flowers open in May, or, in the Southern Mountains, an exceptionally early spring brings them out in April. They are followed, in the late summer, by bright scarlet, showy berries, much more conspicuous than the blossoms. The leaves are often discolored, late in the season, by the attacks of a parasitic fungus, which gives them a striped appearance.



— 115 —

ARIZONA WYETHIA.
WYETHIA ARIZONICA.



— 116 —

SMOOTH ROCK CRESS.
ARABIS LAEVIGATA.

PLATE 115.

ARIZONA WYETHIA. WYETHIA ARIZONICA. (SUNFLOWER FAMILY.)

Perennial, soft-hairy; stem erect, rather stout, not above one foot high, sparingly branched; root-leaves about one foot long, elliptic or oblong, acute at both ends, with a prominent mid-rib; stem-leaves smaller, ovate, uppermost clasping; heads large, solitary at the ends of the branches; outer bracts of involucre leaf-like; rays eight to twelve, large.



EARLY in the century, when the plants of the settled portions of Eastern North America had become fairly well-known to botanists, ardent collectors began to find their way westward. The course of science is always in advance of that of empire. Ere civilization had reached the banks of the Mississippi, explorers were traversing the vast wilderness beyond. Some sought the head-waters of the Mississippi. Others ascended the muddy Missouri. Thomas Nuttall, an English botanist who came quite young to this country, was one of the most indefatigable of these pioneers. He collected extensively in Arkansas. Then, growing bolder, he joined an expedition that pushed across the continent to the Pacific. Hundreds of new plants were thus discovered. For his fellow-explorer, Nathaniel Wyeth, Nuttall named a new genus of the Sunflower Family.

Wyethia is one of the numerous genera of this family confined to Western North America. The species are mostly Californian, though some are widely distributed in the Rocky Mountains. They are rather coarse plants, with large, yellow-rayed heads and resinous juice. The large, starchy roots were eaten by the Indians. Wyethia Arizonica is found near running water in the mountains.

PLATE 116.

SMOOTH ROCK-CRESS. ARABIS LAEVIGATA. (CRESS FAMILY.)

Whole plant quite smooth; root rather thick, perennial; stem erect, simple, leafy; root-leaves rosulate, on margined petioles, spatulate; stem-leaves oblong, uppermost lanceolate, clasping by an auriculate base, obscurely dentate; flowers small, white, in terminal racemes; petals four; pods long, linear.



IF we wander through the woods on some warm day in winter, when the melting snow discloses here and there the hardy leaves of Mayflower or Wintergreen, we shall find on hillsides and mossy rocks small rosettes of leaves, green above but wine-red on the under surface. This is the Rock-Cress, a common plant distributed over half the continent in the temperate zone, from the north, south to the Gulf, and westward into Minnesota. When winter has stepped from the throne of the year and blithe spring sways the sceptre, a stalk shoots up from the midst of this cluster of leaves, bearing clasping leaves and small white flowers in a wand-like cluster. The flowers are small, and have nothing of remarkable interest about them. They are succeeded by narrow pods, pods many times longer than the flowers themselves, and scythe-shaped.

The Rock-Cress—so named, of course, because of the station it often takes in clefts of rocks—belongs to a genus of rather insignificant plants widely read in the temperate zone. All have flowers much alike, small and white, or greenish. Arabis lyrata, a plant of cliffs in the Appalachian region, but growing in sandy soil near the coast, is perhaps one of the handsomest species. The flowers are larger and of a purer white than is the case with most of its kin.



— 117 —

MARSH SPEEDWELL.



— 118 —

EARLY SAXIFRAGE.

PLATE 117.

MARSH SPEEDWELL. VERONICA SCUTELLATA. (FIGWORT FAMILY.)

Stems slender, creeping at base, often producing slender stolons, erect and leafy above; leaves opposite, linear-lanceolate, acute, dentate; racemes axillary, few-flowered, bracted, axis zig-zag; flowers on long, slender, spreading or reflexed pedicels; corolla small, salver-shaped; pod flattened, broader than long, two-lobed.



HAT is this plant with tiny, long-stalked flowers that grows wherever bog or ditch affords it the moisture it delights in? It is not a handsome plant, nor a conspicuous one. The small blossoms mirror the sky they gaze up to so lovingly.

We are always attracted to a flower of azure color. No matter how insignificant it may be, no matter how coarse and weed-like the stem and leaves, for a touch of the color of the sky in the blossoms, we forget the rest. That is why we love the tiny speedwells, and have made them the emblem of hope and godspeed. They have also come to signify "womanly fidelity," a quality well typified in the tender blue of the blossoms. Blue flowers are always linked in our thoughts with some high virtue. The pretty "Bluets" typify "innocence," the Harebell, "constancy," the Blue Violet, "faithfulness." Their garb is of heaven's own hue. The Marsh Speedwell is found almost throughout the North Temperate Zone. In Europe, Northern Africa, Northern Asia and North America, it is at home. Here it is found in British America and in the Northern States, from the Atlantic to the Pacific, flowering all summer. The odd little capsules are flat and deeply notched. The name *scutellata* refers to the resemblance of the fruit to a shield.

PLATE 118.

EARLY SAXIFRAGE. SAXIFRAGA VIRGINIENSIS. (SAXIFRAGE FAMILY.)

Perennial; stem erect, much-branched, hairy; root-leaves clustered at the base, on short broad petioles, rhombic-ovate or obovate, coarsely crenate, obtuse; stem-leaves much smaller, bract-like; flowers in an open, cymose panicle; petals small, white; fruit consisting of two follicles, scarcely united, spreading.



AMONG the first of "the blooms of early May,"—or, in the South, with the flowers of April—comes this little saxifrage. It loves to grow on rocks, striking its sturdy roots into their clefts, though it may often be met with in loose, sandy soil. The leaves are clustered in a pretty rosette at the base of the stem. They live through the winter, and are often purplish or wine-colored beneath. From the midst of these a bud shoots up in early spring, soon unfolding into a cluster of small, white, five-petalled blossoms. The fruit which succeeds the flower repays a moment of examination. It consists of two pods united at the base, but bending away from each other as if tugging at their fastenings and striving to get loose. The pods are tipped with the curved styles. The Early Saxifrage is common in Eastern North America, as far west as Minnesota and South to Georgia. It is comparatively rare southward, but is common in the North.

The saxifrages are very numerous, and are often exceedingly handsome plants. They belong, for the most part, to the cooler parts of the northern hemisphere, though some follow the high summits of the Andes to the southern extremity of South America.



— 119 —

HOOKED CROWFOOT.

RANUNCULUS RECURVATUS.



— 120 —

CALLIRRHOE.

CALLIRRHOE INVOLUCRATA.

PLATE 119.

HOOKED CROWFOOT. *RANUNCULUS RECURVATUS*. (CROWFOOT FAMILY.)

Stem erect from a thickened, bulb-like base, hirsute, widely branching; leaves hairy, the lower on long petioles, the upper on short ones, three-cleft, the divisions irregularly lobed and toothed; flowers in leafy corymbs, small; sepals reflexed, longer than the pale-yellow petals; achenes long-beaked in close heads.



HE Crowfoots, which have given their name to one of the largest of plant families, are very numerous in North America. The spearworts that dwell in the marshes and the gay yellow buttercups of the meadows, are species of *Ranunculus*. So are some less showy plants that inhabit deep shades and open their pale blossoms unobserved. Among these is the Hooked Crowfoot. In May, in every fertile

“Woodside, where in little companies,
The early wild-flowers rise,”

this *Ranunculus* may be encountered. The insignificant flowers give place to a round head of seeds, each tipped with a long, curved beak. It is to the likeness of these seeds to the talons of a bird that the name *Crowfoot* refers. *Ranunculus* means “a little frog,” because most of the Crowfoots and buttercups grow in bogs and ditches, where *Ranus* lifts his voice in noisy chorus.

The Crowfoot Family is an assemblage of plants of very diverse feature. The buttercups themselves, the Clematis with beautiful white or purple flowers and long-tailed fruit, the dainty Anemones, the brave little Hepatica, the rock-dwelling Columbine, the gay larkspurs, the handsome, treacherous aconite and the feathery-flowered bane-berry, are of this kindred.

PLATE 120.

CALLIRRHOE. *CALLIRRHOE INVOLUCRATA*. (MALLOW FAMILY.)

Whole plant hairy; root thickened, fusiform; stems clustered, much branched, leafy; leaves alternate, long-petioled, deeply palmately-cleft, divisions variously lobed; stipules large and prominent; flowers large, solitary, on long peduncles, subtended by a three-leaved involucre; petals much exceeding the calyx, purple.



N the northeastern part of our continent, the Mallow Family numbers among its members few plants but weeds, introduced from Europe. True, we have the Hibiscus of river-banks and marshes, among the most gorgeous of our wild-flowers. But with this exception, our Eastern Mallows are not very handsome plants. On the western prairies, however, we may see this family in its glory. In spring, the plains are pink and white, scarlet and purple, with the blossoms of *Sidalceas* and *Sphaeralceas*, *Malvastrums* and *Callirrhoeos*.

The species of *Callirrhoe* deserve a high place among our most beautiful wild-flowers. They are queenly in their array of large pink or rose-purple blossoms. They are mostly low plants with thick roots. *Callirrhoe involucrata* is a native of the land just west of the Mississippi, ranging from Minnesota and northern reaches to Texas.

The name of the genus, *Callirrhoe*, is that of the fabled daughter of the river-god Achelous, who married Alcmaeon, the matricide, one of the famous “Seven against Thebes.” It is a pretty custom, that of giving plants the names of the heroines of the beautiful Hellenic mythology. For the religion of the old Greeks, above all others, throbbed with the Spirit of Nature.

PLATE 121.

ROBIN'S PLANTAIN. ERIGERON BELLIDIFOLIUS. (SUNFLOWER FAMILY.)

Perennial, with a short rootstock, forming offsets after flowering, hairy; stem erect, a foot or two high, leafy below; root-leaves obovate or spatulate, petioled; stem-leaves oblong-spatulate to lanceolate, clasping; heads few, large; rays numerous, white or pale blue.

"Of all the flowers in the mede,
Them love I most these floures white and rede
Such that men callen Daisies in our town,
To them I have so great affection,
As I sayd erst, when comen is the Maie."



THE pretty little English daisy, *Bellis perennis*, sung by the gentle-souled Chaucer so long ago, is not found in North America. But a nearly allied species, *Bellis integrifolia*, sometimes known as the "Western Daisy," is native in the Southwestern States, coming as far towards the northeast as Central Kentucky.

A common plant in the eastern part of the continent is *Erigeron bellidifolius*, so named from the resemblance of its leaves to those of the true daisy. It grows in thickets and on rocky hillsides, preferring dry soil. The blossoms open in April and May.

The heads are large, with yellow disk-flowers and many narrow, white, pinkish or bluish rays.

The significance of the name by which it is popularly known, "Robin's Plantain," is not quite obvious. Perchance the resemblance of the leaves in shape to those of the common rib-wort or plantain, and the time of flowering, when the robins sing loudest, will explain the odd title.

PLATE 122.

GRASS OF PARNASSUS. PARNASSIA CAROLINIANA. (SAXIFRAGE FAMILY.)

Whole plant smooth; stems clustered, erect from a creeping rootstock, scape; root-leaves on slender petioles, ovate, obtuse, truncate or subcordate at base, thickish; stem-leaf solitary, clasping; flowers solitary, terminating the stems; petals five, yellowish-white, veiny; perfect stamens five, sterile stamens fifteen.



DEDICATED as it is to the abode of the muses, the Grass of Parnassus should be the poet's own flower. Yet this beautiful plant, that would lend itself readily to verse and song, has been less praised than many an unlovely or uninteresting flower. It is a singularly elegant plant, rising out of the rich, moist soil like a naiad from her mossy couch. The luscious green of the smooth leaves, the large blossoms crowning the almost bare stems, their white petals delicately nerved with greenish-yellow,—what could be more exquisitely lovely? *Parnassia Caroliniana* is frequent from Canada to Florida and west to Texas. The flowers open in early summer.

No family numbers more interesting and beautiful plants among its members than does the Saxifrage Family. Beside the Grass of Parnassus, this group contains the currants and gooseberries with their tart, delightful fruits, the showy Hydrangeas, the delicate little mitrewort, the splendid Mock-Orange, the Japanese Deutzias, so much cultivated, and the curious alum-roots. Except the species of *Ribes*,—gooseberries and currants,—none of our representatives of this family are of economic value. It is for their elegant beauty that we prize them.



— 121 —

ROBIN'S PLANTAIN.
ERIGERON BELLIDIFOLIUS.



— 122 —

GRASS OF PARNASSUS.
PARNASSIA CAROLINIANA.

PLATE 123.

THISTLE. *CARDUUS (CNICUS) DISCOLOR.* (SUNFLOWER FAMILY.)

Stem erect, rather stout, sometimes six feet high, branching; root-leaves large, stem-leaves smaller, all pinnately parted or divided; segments lobed and toothed, the teeth spine-tipped, green above, white-tomentose beneath; heads rather large; involucre much imbricated, bracts tipped with spines; flowers numerous, purple.



FAMOUS plants are the thistles, yet opinion differs in regard to them. Some of us consider only their weed-like habit and their bristling armor of spines, pronouncing them the most noisome of soil-thieves. Others look at them from the æsthetic standpoint, and find great beauty in the heads of purple flowers and the plumed seeds. The thistle was the emblem of Scotch nationality,—noble and kindly within, but resolute to withstand aggression without. In the language of flowers it signifies “austerity.” This quality is its outer garment. At heart it is gentle.

Carduus discolor is the showiest of our eastern thistles. It is a conspicuous object in the open fields where it oftenest grows. In early summer clumps of large root-leaves, whitened like a miller's coat beneath, mark where soon the tall stems shall rise. These bear numerous heads of flowers. As the spring leaves protect the stem, so the blossoms are safely guarded by the bell-shaped involucre of many firm leaves, overlapping each other like shingles on a roof. Each is tipped with a sharp, spreading spine. The thistles are well-protected against most herbivorous animals, tempting them with their display of sappy green leaves and stem, only to repulse them with their formidable array of spines.

PLATE 124.

GOLD THREAD. *COPTIS TRIFOLIA.* (CROWFOOT FAMILY.)

Smooth, acaulescent perennial, with a slender, creeping rootstock; leaves on long, slender petioles, ternate, leaflets broadly wedge-shaped, lobed and dentate, veiny; flowers solitary, on peduncles usually exceeding the leaves; sepals white; petals much smaller; stamens numerous; pods on spreading stipes, long-beaked with the style.



IN the happy May-time, while we roam through grassy meadows where the patient, soft-eyed cows stand knee-deep in herbage, or search leafy woodland or mossy bog—

“Glad as the golden spring to greet
Its first live leaflet's play”—

we shall find a little white-flowered, shiny-leaved plant, hiding in deep, cool woods and swamps. This is the Gold-Thread. We wonder at the name, seeing only green leaves and snowy blossoms. But if we scrape away the sphagnum or dead leaves amid which it grows, we shall learn the answer to the riddle. The slender, creeping rootstock is bright yellow, and looks like a bit of golden wire, lost in the moss. A delicate little plant it is, shy and shrinking. It is a European flower, as well as native here. With us it is wide-spread in British America and the northernmost States. Occasionally it is met with in “bear-wallows” on mountain-tops, as far south as North Carolina and Tennessee. *Coptis* means *cut*, the name being given these plants because of the divided leaves.

Yellow-colored roots are of common occurrence in the Crowfoot Family. Some of the meadow-rues have them. They have given names to the Golden-Seal and the Shrub Yellow-root.



— 123 —

THISTLE.

CARDUUS (CNICUS) DISCOLOR.



— 124 —

GOLD THREAD.

CORTIS TRIFOLIA.

PLATE 125.

ARETHUSA. ARETHUSA BULBOSA. (ORCHIS FAMILY.)

Quite smooth; stem erect from a small, round corm, low, simple; leaves consisting of sheathing, membranaceous scales, except one, which is long, linear and grass-like; flower solitary, terminating the stem, large, rose-purple; lip partly pendulous, spotted, crested with hairs.

"June 2, 1853.—Arethusas are abundant in what I may call Arethusa meadow. They are the more striking for growing in such green localities in meadows, where the brilliant purple, more or less red, contrasts with the green grass."—*Thoreau*.



IF a flower combines decided individuality of form with grace and beauty and exquisite fragrance, it has all that a flower can have. All these qualities are united in Arethusa. It is unsurpassed among our wild-flowers. We find it in moist meadows, where the grass has a tenderness, and at the same time, a brilliancy of color not elsewhere seen. It is a low plant. The stem bears several scales, and a single long, narrow leaf. At the summit nods the solitary flower. Occasionally there are two blossoms on the same plant. The color is a rich purple. The hanging lip is bearded with a fringe of pinkish hairs, and is somewhat spotted with deeper color. Arethusa often grows with its cousins, Calopogon and the Snake-Mouthed Pogonia. Its color is richer, a true purple. They have blossoms more nearly roseate.

Arethusa was a beautiful nymph, beloved of Apollo. To escape the attentions of the god of day, she was transformed into a fountain.

PLATE 126.

THORN-APPLE. JIMSON WEED. DATURA STRAMONIUM. (NIGHT-SHADE FAMILY.)

Smooth, succulent annual; stem erect, bushy-branched, leafy; leaves alternate or sub-opposite, long-petioled, coarsely sinuate-toothed, broadly ovate; flowers on very short peduncles, in the forks of the stem; calyx tubular, five-toothed; corolla tubular-funnel-form, limb five-toothed, white; capsule spiny.



WHEN the early colonists of Virginia established their first settlement, they named it Jamestown, in honor of their King. One of the first of Old World weeds to follow them to their home in the wilderness was the Thorn-Apple. Struck with the blazonry of this plant, the sturdy pioneers of the Old Dominion dignified it with the name of Jamestown-Weed. With the true American fondness for contractions, this has been shortened to Jimson-Weed, which name it bears to this day.

Datura Stramonium is supposed to have come originally from Southern Asia, but is now well naturalized in most warm climates. It is a common weed in North America. The large white flowers open at sunset in every barn-yard and bit of wasteland. The blossoms, and, for that matter, the whole plant, exhales a rank, disagreeable odor. It is reputed to be poisonous. The seeds are said to have been eaten by children with fatal results. They are contained in a globular capsule covered with prickles, hence the name "Thorn Apple."

A species nearly related to the Thorn-Apple is Datura Tatula, a South American plant growing wild along our Atlantic sea-board and in the Southern States. It has lilac-purple flowers and purplish stems.



— 125 —
ARETHUSA.
ARETHUSA BULBOSA.



— 126 —
THORN-APPLE, JIMSON WEED.
DATURA STRAMONIUM.

PLATE 127.

TOAD-FLAX, BUTTER-AND-EGGS. LINARIA LINARIA (VULGARIS.) (FIGWORT FAMILY.)

Smooth and somewhat glaucous perennial; stem erect, leafy, simple or branching; leaves alternate, short-petioled, linear, acute at both ends; flowers numerous, in long, terminal racemes; corolla two-lipped, spurred, with the throat closed by a palate, orange and yellow.



ONE of the prettiest of weeds is the Toad-Flax. It is a common plant of our waste-ground and waysides introduced from Europe. The stems are very leafy, fairly shaggy with leaves. These are narrow and rather pale. The showy flowers are in long, spike-like clusters. The corolla is pale-yellow, with an orange-colored palate. Hence the appropriate, if not altogether romantic name of "Butter-and-Eggs."

Thoreau writes of it,—"Linaria vulgaris, Butter-and-Eggs, Toad-Flax, was seen the 19th of June. It is rather rich-colored, with a not disagreeable scent. It is called a troublesome weed. Flowers must not be too profuse and obtrusive, else they acquire the reputation of weeds. It grows almost like a cotton-grass, so above and distinct from its leaves, in wandering patches higher and higher up the hill."

While the blossom of the Toad-Flax is ordinarily irregular, it sometimes happens that an almost regular, five-lobed corolla is produced. It is one of the best-known cases, in plants, of return to an ancestral type.

The Linaria is fertilized by bees. The palate is pressed down by the weight of these insects, whereas, such as have lighter bodies, butterflies, for example, are refused admittance.

PLATE 128.

RED RATTLE. PEDICULARIS PALUSTRIS WLASOVIANA. (FIGWORT FAMILY.)

Stem smooth, erect, branching, leafy; leaves alternate, short-petioled, pinnatifid, segments linear, toothed; flowers in short, spike-like racemes at the ends of the branches; calyx short tubular, two-cleft; corolla erect, tubular, labiate, upper lip helmet-shaped, lower broad and flat.



COMMON plant of bogs and moist meadows in Europe is Pedicularis palustris. It is known as Red Rattle among the country folk of England, because the ripe seeds rattle in the pods. We have not the typical Pedicularis palustris in this country; but a variety, named after the Russian botanist Wlassow, is found about Hudson's Bay, and southwestward to Oregon. It is an erect, branching plant, with cut leaves and numerous flowers. These are reddish-purple in color, and two-lipped. The lower lip is broad and pendant, while the upper is erect and arched at top, somewhat like the mediæval helmet. It wants the conspicuous beak of some other kinds of Lousewort.

The numerous species of Pedicularis are nearly all found in Arctic or Subarctic regions, or on high mountains. These plants are suspected of preying upon the roots of other plants, but this has not been definitely established. A number of closely-allied plants of this family are known to be partly parasitic, like the Cow-wheat (Melampyrum). They all have green leaves, however, and are not entirely dependent on other plants for their living, as are the allied family, the Broomrapes. These have the leaves reduced to mere scales, and are destitute of green color.



— 127 —

TOAD-FLAX, BUTTER-AND-EGGS.

LINARIA. LINARIA VULGARIS.



— 128 —

RED RATTLE.

PEDICULARIS. PALUSTRIS. WILSOVIANA.



— 129 —

AMERICAN CENTAURY.

SABBATIA STELLARIS.

JULY.



— 130 —

SWEET-SCENTED BEDSTRAW.

GALIUM TRIFLORUM.

JULY.

PLATE 129.

AMERICAN CENTAURY. SABBATIA STELLARIS. (GENTIAN FAMILY.)

Smooth probably annual; stem erect, widely branching; leaves opposite, sessile, lowest oblong spatulate, uppermost linear acute at both ends, margins entire or nearly so; flowers in open, leafy cymes; calyx lobes five, long and narrowly linear; corolla rotate, five-parted.



THE true Centaury of Europe, a smooth little plant with pink flowers, is more or less naturalized along the shores of one or two of the Great Lakes. The Sabbatias, a genus of beautiful plants most abundant along the Atlantic Coast and in the Southern States, stand for the Centaury here. Most European plants are represented in this country by others more or less resembling them. Upon these, in fond remembrance of the dear flowers of Old England, the early colonists loved to bestow English names. So we have Cowslips, Bluebells, Mayflowers, Centaury. A good usage, for it has transferred to the unknown plants of the New World some of the wealth of association possessed by their transatlantic cousins.

Sabbatia stellaris, which has received the Centaury's name along with others of its sisters, is a beautiful flower of the coast-bordering marshes as far South as Florida. The usual elegance of form of the gentians is displayed by it. Its handsome flowers are normally of a clear pink

"As if a lily flushed
With a rose's red heart's tide,"—

but are sometimes white as the driven snow. They open to the sun of midsummer. An upland species, Sabbatia angularis, has a rich, entrancing fragrance to the blossoms. Some species have a perfect, five-pointed, yellow star in the center of the corolla.

PLATE 130.

SWEET-SCENTED BEDSTRAW. GALIUM TRIFLORUM. (MADDER FAMILY.)

Stems weak reclining, branching, four-angled, angles slightly winged and retroisely hispid; leaves in whorls of four to six, oblong-lanceolate, mucronate, margins and prominent mid-rib hispid, flowers on long three-flowered, axillary peduncles; corolla small, wheel-shaped, four-parted, greenish; fruit covered with hooked prickles.



THE perfume of the orchids is often too rank, too earthy, too suggestive of the slime from which they arise, to be grateful to us. Thoreau has it that the snake-mouthed Pogonias is distinctly reptilian in its odor. But there is a tropical, climbing orchid that yields a fragrance unsurpassed. It is the vanilla, from whose pods the familiar essential oil is expressed. Some of our North American plants mimic this odor. One of these is Trilisa, the Vanilla-plant, used in the Southern States for flavoring tobacco. Two familiar grasses, the Sweet Vernal Grass, imported from Europe, common in the June meadows, and the Vanilla Grass exhale the same perfume. Oddly enough one of the insignificant little bedstraws, Galium triflorum, has something of this aromatic fragrance. When dried the leaves give forth a faint odor suggestive of vanilla.

The sweet-scented bedstraw is a common plant in deep, rich woods. Its weak stems bear leaves in circles of four or six, and tiny greenish flowers. The small dry fruit, when ripe, clings to us by its numerous tiny grappling-hooks. It is found over the whole of this continent and also in Europe. The small blossoms open in June and July.



— 131 —

MARSH EVERLASTING PEA.

LATHYRUS PALUSTRIS.



— 132 —

COMMON TANSY.

TANACETUM VULGARE.

PLATE 131.

MARSH EVERLASTING-PEA. LATHYRUS PALUSTRIS. (PEA FAMILY.)

Stem erect, or reclining, usually more or less winged, smooth; stipules prominent, ovate-lanceolate, acuminate; leaves pinnate, the terminal leaflet changed into a slender tendril; leaflets oblong-lanceolate or linear, acute; flowers few in long-peduncled racemes; corolla comparatively small, blue.



FOR those who look to the flowers, not for the ever-present lesson of beauty with a purpose, but to trace some significance in the blossoms to human thoughts, emotions, passions, the Everlasting-Pea bears the message of "enduring happiness," a pleasant meaning truly to shine from the face of a flower.

The Marsh Everlasting-Pea, *Lathyrus palustris*, of Europe, is also found in the cooler parts of North America, across the breadth of the continent from the storm-tossed Atlantic to the vast Pacific. As the name tells, it loves the plenteous moisture of bogs, where its fresh green foliage and pretty blue flowers carpet the ground in great masses of bright color. A smooth plant is this

Wild Pea, with mostly winged stems. It flowers in summer.

There is something honest and substantial about the beauty of the Pea Family. The locusts, with their great clusters of white or rose-colored blossoms, the purple masses of the Wistaria, the clovers—white or scarlet, crimson or yellow, the brilliant spikes of the lupines, all have this quality of solidity in their loveliness. They suggest fragrant hay, honey—amber-colored, starchy seeds full of nutriment. Even such as are not valued by the farmer borrow the semblance of utility from their cousins.

PLATE 132.

COMMON TANSY. TANACETUM VULGARE. (SUNFLOWER FAMILY.)

Stem glabrous, erect, usually two or three feet high, leafy; leaves on winged petioles, bipinnate, the segments pinnatifid, ultimate divisions sharply toothed; heads in a terminal, rather dense corymb, on clavate peduncles, rayless; achene obconical; pappus of five scales partly united.



THE yarrow, the ox-eyed daisy, the wormwoods,—these are near relatives of the Tansy, humble wayside weed. A native of Europe from the icy Arctic Ocean to the shores of the warm "Middle Sea," and of Siberia, it was brought to this country by our grandmothers, who loved a bit of tansy in a nose-gay. Driven from its corner in the garden by the advance of civilization with the prouder flowers in her train that have banished the modest favorites of a less sophisticated generation, it has sought refuge in the bye-ways. It is now a common weed widely distributed in the East, and is making its way ever further and further westward.

Despite the absence of the circle of bright rays that make allied plants so gay in flowering, it is not an ugly plant. The small, yellow heads and the gracefully cut leaves go well together. In an odd variety the leaves are delicately crisped like those of the spinach. The meaning of the name *Tanacetum* is unknown. Equally obscure is its significance in the language of flowers, in which mystic dialect it is the symbol of a "declaration of war."



— 133 —
SPREADING ASTER.
ASTER PATENS.
AUGUST.



— 134 —
YELLOW FOX-GLOVE.
DASYSTOMA (GERARDIA) QUERCIFOLIA.
JULY.

PLATE 133.

SPREADING ASTER. ASTER PATENS. (SUNFLOWER FAMILY.)

Perennial, rough-pubescent; stem somewhat brittle, erect, widely branching; root-leaves ovate, not cordate; stem-leaves clasping by a heart-shaped base, oblong ovate, usually narrowed in the middle, mucronate, rather thick; heads long-peduncled, racemously arranged on the upper side of the branches; involucre much imbricated, bracts green-tipped; rays showy, violet.



WE are told by the hermit of Walden of the part the asters and golden-rods play in the economy of the insect-world, when fading summer carries with her one by one the flowers whereon the tiny, winged botanists depend for sustenance.

On the last day of September, "By the roadside at Walden, on the sunny hillside sloping to the pond, we saw a large mass of golden-rod and aster, several rods square and comparatively fresh. Getting out of our wagon, we found it to be resounding with the hum of bees. It was about one o'clock. Here were far more flowers than we had seen elsewhere, and bees in great numbers, both bumble-bees and honey-bees, as well as butterflies, wasps and flies."

There is no handsomer aster than the Spreading Aster. Others have finer foliage, glossier and more shapely leaves, but none excel it in beauty of flowers. The head, yellow-centered with its border of deep violet rays, is like a cheery round face in a fringed night-cap, smiling and happy. A more regal color than that of these ray-flowers of aster patens, 'twould be hard to find. It is almost precisely the shade of rich purple-blue that belongs to our common Blue Violet.

PLATE 134.

YELLOW FOX-GLOVE. DASYSTOMA (GERARDIA) QUERCIFOLIA. (FIGWORT FAMILY.)

Stem erect, branching, glabrous and more or less glaucous; leaves alternate, ovate-oblong in outline, pinnatifid, the uppermost almost entire; flowers on short peduncles, in terminal, bracted racemes; calyx small, five-toothed; corolla large, campanulate-funnel-form, bright yellow.



FLOWER never absent from an English landscape is the Digitalis. Its long spikes of large, drooping, purple flowers stand sentinel-wise in every pasture and on every hillside, in summer. The children love these flowers. They pull them and place them on their fingers, sportively calling them Fox-gloves. The poets have much to say of them. Robbie Burns, in one of his sweet idyllic songs, numbers them with the fairest flowers of his beloved Scotland—

"Mourn little harebells o'er the lee;
Ye stately fox-gloves fair to see;
Ye woodbines hanging bonnie,
In scented bow'rs;
Ye roses on your thorny tree,
The first o' flow'rs."

Yet this, like many another fair plant, hides venom 'neath its beauty. The deadly alkaloid, digitalin, a valued medicine when rightly used, is a dangerous poison to him who swallows it unwittingly.

Gerardia quercifolia, a tall plant of copses and open woods in North America, is not unlike the Digitalis of Europe. Its yellow blossoms are shaped like the Fox-glove bells, so that it has been named Yellow or False Fox-glove. It is a smooth plant, with the lower leaves cut somewhat like those of the white oak, hence its specific name. It ranges from Canada, southward to Florida and westward to Minnesota.



— 135 —

CHECKERBERRY.
GAULTHERIA PROCUMBENS.

MAY—JULY.



— 136 —

SHOOTING STAR.
DODECATHEON MEDIA.

MAY—JULY.

PLATE 135.

CHECKERBERRY. GAULTHERIA PROCUMBENS. (HEATH FAMILY.)

Suffrutescent, smooth: stems low, erect from long, slender, creeping, woody rootstocks; leaves evergreen, thick, upper surface shining, short-petioled, ovate, mucronate, sharply serrate; flowers axillary, on bracted pedicels; flowering-calyx small, five-toothed; corolla cylindrical-urceolate, five-toothed, white; capsule five-celled, berry-like, surrounded by the enlarged, fleshy calyx.



OUSIN-GERMAN to the beautiful trailing-arbutus is the small Gaultheria, one of the most deliciously fragrant of our native plants. The shining green leaves do not fall in autumn, but remain through the winter, safe-hidden under the pitying snow. The flowers are small, and single on their stalks. The white corolla is shaped like an antique urn. As it withers it gives place to a small, berry-like fruit, whitish at first, but turning a vivid red. This has earned it the name of Checkerberry in New England. Sometimes it is called Partridge-Berry, but that name rightfully belongs to *Mitchella repens*. Like the true Partridge-Berry, it spreads a welcome feast for birds that do not migrate to the South in winter.

In the mountains it is known as Tea-berry or Mountain-tea, and its leaves are used in various decoctions highly esteemed as remedies. When crushed the leaves yield a warm, aromatic fragrance, much like that of the tender inner bark of the Cherry Birch. Partly from the Checkerberry, partly from the birch-bark, the fragrant Oil of Wintergreen is obtained. The true Wintergreen, *Pyrola*, is odorless. *Gaultheria procumbens* is native from high northern latitudes southward, in mountain woods, to Georgia.

PLATE 136.

SHOOTING STAR. DODECATHEON MEADIA. (PRIMROSE FAMILY.)

Perfectly smooth: roots fibrous, thickened, clustered; leaves all radical, large, oblong or obovate, obtuse, on margined petioles, rather veiny, margins obscurely sinuate; scape simple, one foot or so in height, bearing at summit a bracted umbel of large flowers; corolla five-lobed, lobes soon reflexed.

"Where the bee sucks, there suck I;
In the Cowslip's bell I lie;
There I crouch when owls do cry."



UCH is Ariel's elfin song. Even in Shakespeare's time the Cowslip was a favorite flower. Men likened its fragrance to that of the lips of kine, fresh from browsing on the perfumed meadow grass. No plant has won itself more into the life of the English-speaking races than this. In this country we have an hereditary fondness for it. We have looked for a like flower here whereon to bestow the treasured name.

We chose a handsomer plant, the Shooting Star, and christened it "Cowslip." But, alas! it has no fragrance. Fewer showier, more beautiful flowers adorn our landscapes. What an odd plant it is as we come upon it in rocky glen or on woodland bank, with the cluster of smooth green leaves and the bare stalk, from out of their midst, raising the cluster of flowers! Quaint blossoms are these, looking like white butterflies with folded wings, alit for a second at the summit of the stalk. The petals are bent backward. This, with the pointed cluster of stamens, gives an alert look to the flower.

PLATE 137.

MAY WEED. ANTHEMIS COTULA. (SUNFLOWER FAMILY.)

Pubescent annual; stem erect, branching, one to two and a half feet high, leafy; leaves alternate, finely dissected, segments narrowly linear; heads solitary at the ends of the branches; rays half an inch long, white; disk yellow.

"June 25—Maruta Cotula, or Mayweed. Why so named? Just begins, with its strong-scented leaf. It has taken up its position by the roadside close to the ruts—in bad taste."—*Thoreau*, "Summer."



OME plants are endowed with odors as disagreeable to us as the scent of another plant is grateful. We wonder at the repulsiveness of the carrion-flower, for instance, or the skunk-cabbage. But if we reflect for a moment that plants exist for themselves and not for us, and that we have made some of them useful to us by adapting ourselves to them, while others to which we are not drawn by ties of habit seem offensive, we will cease to marvel. The rank odor of the Mayweed, then, is of use to the plant itself. How? Doubtless friendly insects are attracted thereby, or unwelcome guests are repelled. Most of these malodorous flowers are fertilized by flies, whose olfactory nerves are tickled by other perfumes than those that appeal to bee or butterfly.

We may wonder with *Thoreau* why this common roadside weed has been called Mayweed. With us it commences to flower in June, except in the South. It was introduced from Europe, but is now common everywhere in Eastern North America.

PLATE 138.

ENGELMANNIA. ENGELMANNIA PINNATIFIDA. (SUNFLOWER FAMILY.)

Whole plant rough-hairy; stem erect, one or two feet high, branching above; root-leaves long petioled, pinnately parted, segments coarsely toothed; uppermost stem-leaves sessile; heads on long, few flowered peduncles; involucre much imbricated; rays bright yellow; achenes roughened.



HIS is one of those rough, sturdy plants of the sunflower family that find life on the prairies much to their taste. The fierce solar beam that would soon scorch and wither the delicate little flowers of our eastern forests or of the western mountains, is as grateful as morning dew to the denizens of the great plains. They have become fitted during countless generations to withstand the unbroken power of the prairie's midsummer sun. Nature has tenderly clothed them with a garment of shaggy hairs or of fine wool, which keeps the moisture within from escaping and prevents the heat without from entering too freely.

Engelmannia is a rather coarse plant with deep-cut leaves and small yellow heads, not unlike those of its relative, the garden fever-few, in general appearance. It is found in Kansas southward to Louisiana and westward to Arizona, straying northward.

This plant was dedicated by two of the greatest of American botanists to a third. John Torrey and Asa Gray, who worked together for many years in bringing to knowledge the plants of Western North America, named the Engelmannia for their distinguished friend and co-laborer, Dr. Engelmann, of St. Louis. Engelmann was an able and exceedingly industrious botanist, who studied the pines, oaks, grapes, cacti and other very difficult groups.



— 137 —
MAY-WEED.
ANTHEMIS COTULA.
JULY



— 138 —
ENGELMANNIA.
ENGELMANNIA PINNATIFIDA.

PLATE 139.

YELLOW MELILOT, SWEET CLOVER. MELILOTUS OFFICINALIS. (PEA FAMILY.)

Annual, smooth or nearly so; stem erect, somewhat striate; stipules lanceolate, sharp-pointed; leaves alternate, long-petioled, pinnately trifoliate; leaflets obovate-oblong, sharply dentate, obtuse at apex, acutish at base; flowers small, yellow, in long, slender, axillary racemes; pod exceeding the calyx, one or two-seeded.



IN the Old World, where land is cultivated to the utmost, where soil so barren as to be apparently worthless is made to yield bounteous crops, the lesson of tilth has perforce been better learned than by our own farmers, who have a wide continent to choose from. Hence plants that are scorned by us as worse than useless are prized by the European agriculturist for forage. Among these are the melilots, yellow and white, common here as weeds of wayside and waste-ground, but rarely used as pasturage. In the Old World the young shoots are esteemed for this purpose, especially as the melilots will grow in the poorest soil.

The Yellow Melilot, like its sister, Melilotus alba, has come to us from Europe. Wide-spread in Eastern North America, it is working its way steadily westward, especially along railroad tracks, stealing a ride now and then like any human tramp. It finds a congenial soil in the loose earth of embankments. It is rather a conspicuous plant when growing in quantity, the bright yellow flowers making a brave display. Its delightful fragrance when dried has earned it the name of Sweet Clover.

PLATE 140.

LARGE-FLOWERED BLUE-EYED GRASS. SISYRINCHIUM GRANDIFLORUM. (IRIS FAMILY.)

Perennial, quite smooth; roots clustered, fibrous, fleshy; stems flattened, winged, longer than the leaves, basal leaves short, membranaceous, upper, long, linear, grass-like; flowers on slender pedicels, in an umbellate cluster from a spathe of two leaves; perianth segments six, ovate-oblong, blue-purple.



ANY plants of Eastern North America are represented by corresponding species in the western part of the continent, often without any related forms being found in the region between. Thus the Box-Elder, Button-wood, Spikenard, Sweet Shrub and scores of other herbs, shrubs and trees have their counterparts on the Pacific Coast. So the pretty little Blue-eyed Grass of meadows and fields eastward, is replaced in the country that slopes to the great western ocean by showier Sisyrinchiums, with larger flowers.

Of these, Sisyrinchium grandiflorum is perchance the finest. It is an elegant plant, with its amethystine flowers in a severely simple setting of narrow, grass-like leaves. It is one of the plants that Thoreau would call "all flower." The foliage counts for nothing. It is lost in the grass amid which the Sisyrinchium grows. This Blue-eyed Grass is rather a low plant, the stems not exceeding one foot in height. Its flowers, usually rose-purple in color, are occasionally pure white. Our eastern blue-flowered species sometimes produces white blossoms. Sisyrinchium grandiflorum is native in British Columbia and thence southward to Northern California, and in Idaho.



— 139 —

YELLOW MELILOT, SWEET CLOVER.

MELILOTUS OFFICINALIS.

JUNE.



— 140 —

LARGE-FLOWERED BLUE-EYED GRASS

SISYRINCHIUM GRANDIFLORUM.

JULY

PLATE 141.

KING'S ERITRICHIMUM. 'SONNEA (ERITRICHIMUM) KINGII. (BORAGE FAMILY.)

Biennial, bristly-hairy; stems four to eight inches high, sparingly branched, rather leafy; leaves alternate, the radical clustered, long-petioled, spatulate, stem-leaves sessile, oblong, obtuse, papillose-roughened; flowers in dense, spike-like racemes, panicled; corolla-tube short, limb spreading, five-lobed, white; nutlets roughened.



ONE of the most unattractive of plant families, if we take it as a whole, is that of the Borages. Coarse, bristly plants they are, for the most part. The fruit is usually covered with hooked prickles that catch in the hair of animals, whether worn by the original owner or a successor. Even the dear little Forget-me-not would be an unattractive enough plant, if we saw only stem and leaves. It is the tiny blue blossom that looks up at us like the trusting face of a child, to which the Forget-me-not is indebted for admiration.

These rough Borages are wide-spread on the western prairies, where they find the conditions favorable to the peculiar dispersion for which they are adapted. *Sonnea Kingii*, better known by its older name, *Eritrichium*, is a native of the Pacific Coast and of western Nevada. It is a low plant with thickened roots and rather dense clusters of small white flowers.

It is interesting that the *Sonnea*, like so many western plants, is well provided with hairs, doubtless as a protection against the excessive droughts which often afflict it.

PLATE 142.

BEAR-BERRY. ARCTOSTAPHYLOS UVA-URSI. (HEATH FAMILY.)

Low shrub with scaly bark; stems trailing, much branched; leaves alternate, short-petioled, thick and evergreen, spatulate to oblong-obovate, obtuse, mid-rib thick and prominent; flowers in terminal, few-flowered racemes; corolla urceolate, five-toothed, teeth reflexed; fruit a small, red, five or ten-seeded drupe.



THIS little trailing shrub is found on rocky hillsides in the northern part of the Northern Hemisphere, circling the globe. It is a near relative of the Trailing Arbutus and the Checkerberry, resembling them in its habits. 'Tis a handsome little plant, with thick shining leaves and small clusters of white flowers, succeeded by bright red berries. Its name, both generic and specific, is a translation into Greek and Latin respectively of the English, Bearberry. Mayhap Master Bruin finds the fruit to his liking, but to us it has not a pleasant taste.

Another species of *Arctostaphylos* is found on high mountain-tops, and in subarctic regions everywhere. It has black fruit. There are many species of Bearberry in the Western States, particularly in California and British Columbia. Some are handsome shrubs of considerable size, with flowers white or flushed with rose-color. These shrubs were also much developed in past geologic periods. In Cretaceous and Tertiary strata numerous leaves have been found which are supposed to have belonged to species of *Arctostaphylos*. Indeed, the genus seems to have been more predominant formerly than it is now.



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KING'S ERIGERON.
SONCHUS (ERIGERON) KINGII.
JUNE.



— 142 —

BEARBERRY.
ARCTOSTAPHYLOS UVA-URSI.

PLATE 143.

HEDGE-MUSTARD. SISYMBRIUM OFFICINALE. (CRESS FAMILY.)

Annual; stem erect with wide-spreading branches, more or less hairy, two or three feet high; leaves alternate, mucronate-pinnatifid, segments coarsely and irregularly toothed; flowers racemously disposed on the branches, very small; petals four, pale yellow; pods slender, erect, close to the stem.



THE Cress-Family, which gives us so many delicious vegetables, is also famous for the number of troublesome weeds on its roll of membership. The whitlow-grass, the Shepherd's Purse, the hated Charlock, the pepper-grass, the winter-cress and many other plants oft condemned by farmers, belong to this large family. Of these the Charlock alone, bane of grain-fields in Europe and in the northern part of this continent, needs the full array of toothsome delicacies afforded by its relatives, to balance its account of loss and harm.

The Hedge Mustard, so named, doubtless, from its habit of growing in hedgerows and shaded waste-ground and from the resemblance of its small yellow flowers to those of the true mustard, is another of the weeds for which we are indebted to the land of the black rat and the English sparrow. It is undeniably an ugly plant with its straggling branches, rendered ragged looking by the small slender pods close-pressed to the stem. The yellow blossoms are much like those of the rest of the family. Indeed, among the cresses, the differences between the flowers of different genera and species are almost limited to color.

Sisymbrium officinale is a common weed with us in the East, flowering in early summer.

PLATE 144.

WHEELER'S CHÆTADELPHA. CHÆTADELPHA WHEELERI. (SUNFLOWER FAMILY.)

Perennial; stem erect, much branched; lower leaves narrowly linear, the uppermost mere scale-like bracts; heads single at the ends of the branches, nearly an inch high; involucre of five, long membranaceous bracts, and a few much shorter outer ones; flowers all ligulate; pappus of rigid bristles, in five sets, one bristle of each set being longer and more rigid.



URING the earlier half of the seventies, explorations were conducted by the United States War Department in the region west of the one hundredth meridian, under the charge of Lieut. George M. Wheeler. Portions of Colorado, Utah, Nevada, New Mexico and Arizona were traversed and investigations in every branch of science were made. One result of this admirable survey was the discovery of a large number of new plants. One of the oddest and most notable of these constituted a new genus which Gray called *Chætadelpha*, because the bristles on the seeds are assembled into groups or "sisterhoods." The plant was named *Chætadelpha Wheeleri* as a compliment to the director of the survey. When will our undiscovered plants be sought for?

The *Chætadelpha* is a low plant with wiry stems, which look quite bare with their few small leaves. The heads of flowers of a bright rose-color are very pretty, and are all the more conspicuous for the nakedness of the rest of the plant. It is native on the arid plains of Western Nevada, near the Arizona state-line, straying northward. 'Tis a rare little plant, having been encountered by only one or two collectors.



— 143 —

HEDGE MUSTARD.
SISYMBRIUM OFFICINALE.
MAY—SEP.



— 144 —

WHEELER'S CHÆTADELPHA.
CHÆTADELPHA WHEELERI.



— 145 —

FIVE-LEAVED GINSENG.
CANAX (ARALIA) QUINQUEFOLIA.
JUNE—JULY.



— 146 —

YELLOW OR CAROLINA JESSAMINE.
GELSEMIUM SEMPERVIRENS.
MARCH—APRIL.

PLATE 145.

FIVE-LEAVED GINSENG. PANAX (ARALIA) QUINQUEFOLIA. (GINSENG FAMILY.)

Stem erect from a fusiform, thickened root, from three to twelve inches high, smooth, rather weak; leaves three in a whorl, slender-petioled, palmately compound; leaflets five or seven, oblong or obovate-lanceolate, acute; flowers small, white, in a terminal umbel; fruit a small, red berry.



HIS handsome little Ginseng is becoming scarce. Where it formerly grew in patches one must needs search long now to find a single plant. The five-leaved Ginseng is by no means so common, as a rule, as the three-leaved species. The thick aromatic root was once much esteemed in medicine here at home, and still brings a round price in China, whither much of it is exported from this country. For this reason it has been almost exterminated in many parts of the United States. In the Appalachian region, where it is most at home, the hunt for it has been very destructive. In the South, where it is known as "sang," large parties camp out in the rich mountain woods in which it grows, and search for it day by day. The late summer is usually the time chosen for "sanging," as then the red berries are very conspicuous. When his supply of tobacco is low, the mountaineer carries a bit of Ginseng root in his pocket, as a substitute by no means unpalatable. But the greater part of it is sold at the nearest "store."

Panax quinquefolia much resembles the three-leaved Ginseng, but may be distinguished easily by the spindle-shaped root and the red berries.

PLATE 146.

YELLOW OR CAROLINA JESSAMINE. GELSEMIUM SEMPERVIRENS. (LOGANIA FAMILY.)

Climbing, somewhat shrubby, quite smooth; stem slender, branching, leafy; leaves opposite, short-petioled, ovate, acute, rounded at base, the upper surface shining; flowers in rather dense, short-peduncled, axillary clusters; corolla large, campanulate-funnel-form, five-lobed; stamens five, anthers arrow-shaped; style filiform, bearing two two-lobed stigmas.

"The soft, warm night wind flutters
Up from the dim lagoon,
While the timorous shadows hide them
From the red new-risen moon;
The scent of the jasmine lingers
Like a languorous pain divine,
Till the night-moth reels in its fragrance,
Drunken as if with wine.
Oh, jasmine fair!
Oh, southern night most rare!"—*Arlo Bates.*



RACE and elegance are personified in the Yellow Jessamine. It is one of the most superb of the wild flowers. The high-climbing stems with their dark-green, shining leaves and clusters of showy yellow blossoms are a meet garland for the flowery woods and swamps of the Southern Atlantic and Gulf States. Added to its other charms, the Yellow Jessamine has exquisite fragrance. It is not a true Jessamine at all, the *Gelsemium*, though its botanical name is a latinization of the Italian for Jessamine. It is almost an evergreen. The handsome flowers are among the first to open,—in March and April. Yet, at that time, the fields and pine woods of the South are bright with color. There is no lack of pink blossoms, and blue and white, to add to the beauty of contrast to the *Gelsemium's*

"Yellow flowers, the gayest in the land."

The Yellow Jessamine belongs to a family renowned for the virulency of the poison in their juices. In North America the Pink-Root, a beautiful plant let it be said, maintains the evil reputation of the family. But in the East Indies are those deadly trees, the species of *Strychnos*, whose seeds are known as *Nux Vomica* and *St. Ignatius' Bean*.



— 147 —
 COMMON FLEA-BEAN.
ERIGERON PHILADELPHICUS.
 JUNE—AUGUST.



— 148 —
 HERB ROBERT.
GERANIUM ROBERTIANUM.
 JUNE.

PLATE 147.

COMMON FLEA-BANE. *ERIGERON PHILADELPHICUS*. (SUNFLOWER FAMILY.)

Perennial; stem erect, striate, hairy, simple below, branched above; root-leaves clustered, on margined petioles; stem-leaves alternate, clasping, oblong or spatulate, sharply and coarsely serrate; heads forming a bracted corymb at the top of the stem; rays numerous, pinkish; disk yellow.



FEW of us do not see beauty in the rose or the water-lily. Even the violet and the anemone win universal admiration. There are not many who, like Wordsworth's Peter Bell, see nothing in the bright, brilliant, fragrant flowers known to us all. It may be said of few whose intelligence rises above the commonest needs and desires of life, as the poet wrote of his villager,—

"In vain, through every changeful year.
Did Nature lead him as before;
A primrose by a river's brim
A yellow primrose was to him,
And it was nothing more."

But, on the other hand, there are few of us who can or will appreciate the beauty of humbler flowers, of the dusty wayside tramps; for "pale wood-weeds, the voice of praise is silent." Yet many, even when measured by exacting standards of beauty, are not found wanting.

Of these plants, often neglected by those to whom the name of weed signifies only ugliness, the Flea-Bane is one. If its tall stem were shortened to the ground its pretty heads and even its leaves would not be a bad imitation of the English daisy. The rays are very numerous, of a rose-pink or purplish color, and surround a disk of bright yellow flowers.

PLATE 148.

HERB ROBERT. *GERANIUM ROBERTIANUM*. (GERANIUM FAMILY.)

Stem erect, much branched, hispid, leafy; leaves opposite, on long petioles, ternately several times compound, appressed hairy; peduncles long, slender, axillary, bearing one or two flowers; sepals five subulate-pointed, exceeded by the five purplish petals; fruit of five carpels which curl away from the axis when ripe.



THE name "Geranium" naturally suggests to our minds the brilliant scarlet or pink-flowered plants, with handsome scalloped leaves, that ornament our conservatories in winter and our gardens in summer. These are not true geraniums, rank heresy as it may seem to say so, but *Pelargoniums*, plants of South Africa. Of true geraniums we have several native species that love deep rich woods, and several more introduced from Europe, growing as weeds on waste ground. Most of these have small flowers, not at all conspicuous. One species, however, *Geranium Maculatum*, has beautiful rose-purple flowers.

Herb Robert is a plant of our damp woods in the middle belt of North America. It is a small plant, hairy, with weak stems. The leaves are prettily cut. Graceful foliage is the rule with the whole *Geranium* family for that matter. Herb Robert is also found in Europe. Its quaint name is a very old one in England. To trace its origin would be an interesting quest.

The flowers of *Geranium Robertianum* are quite small, yet very pretty. Their color is a pale purplish-pink. The plant has a strong odor, rather disagreeable. Somewhat resembling it is *Geranium Carolinianum*, a common weed of waste-ground and dry fields.



— 149 —
 PURPLE CORN-FLOWER.
ECHINACEA AUGUSTIFOLIA.
 JUNE—AUGUST.



— 150 —
 TOOTHWORT.
DENTARIA DIPHYLLA.
 MAY.

PLATE 149.

PURPLE CONE-FLOWER. ECHINACEA AUGUSTIFOLIA. (SUNFLOWER FAMILY.)

Stem simple, erect from a thick, rather woody, scaly, black root, hairy, leafy below; leaves long-petioled, lanceolate, acute at both ends, entire, with three prominent nerves; heads at the rather fistulose naked summits of the stems; rays rather numerous, pink, much exceeding the imbricated involucre.



WE the bright orange-color rays of the common Cone-flower or "Black-Eyed Susan" with rose, adding just a suspicion of purple, and you have the Purple Cone-flower, or a very good imitation of it. Less hairy are the stem and leaves of the Echinacea, the disk a less intense and lighter brown, but otherwise the resemblance to Rudbeckia Hirta is close. It is one of the handsomest of the Sunflower Family. As a rule these plants are more noticeable for showiness of flowers than for elegance of form. The Purple Cone-flower is to a certain extent an exception. Rigidly upright as are its stems, there is something of grace in their port, undefinable but apparent. Still more beautiful is its sister-species, Echinacea Purpurea. This has broader leaves and is less stiff; it is less hoary and of a brighter green.

Echinacea Augustifolia is properly a prairie plant, ranging from our Western prairies to the glades of Middle Tennessee, and thence to the South and West, blossoming in early summer. It often grows with the common Cone-flower, contrasting with the vivid yellow and black of its relative.

PLATE 150.

TOOTHWORT. DENTARIA DIPHYLLA. (CRESS FAMILY.)

Perennial; stem erect from a long, horizontal, toothed rootstock, smooth, unbranched; leaves pinnately trifoliate, the radical on very long, the cauline, two, opposite, on short petioles; leaflets ovate or oblong, wedge-shaped at base, sharply toothed; flowers long-pedicelled in a simple raceme, purplish.



ERE we have one of the prettiest of our spring wild-flowers,—a much handsomer plant than most of its family. The graceful cluster of pale purple flowers rising above the twin leaves, is one of the showiest objects in the April woods. It is a native of Canada and the Northern States east of the Mississippi and south to the mountains of Tennessee and the Carolinas. The dentate rootstock is responsible for the names, both Latin and English. It has a pleasant, biting taste. But on this point we had better repeat what Burroughs has said in his characteristic way, in "Signs and Seasons":

"When I was a school-boy, we used to gather, in a piece of woods on our way to school, the roots of a closely allied species to eat with our lunch. But we generally ate it up before lunch-time. Our name for this plant was 'Crinkle-root.' The botanists call it the toothwort (Dentaria), also, pepper-root."

Describing the flavor of the roots, he says:

"They were a surprise and a challenge to the tongue; on the table they would well fill the place of mustard, and horse-radish and other appetizers."

A more delicate species of Dentaria is Dentaria Laciniata, which has deeply cut leaves and pale pink or nearly white flowers.



— 151 —

NEWBERRY'S LEUCAMPYX.

LEUCAMPYX NEWBERRYI.



— 152 —

PARTRIDGE BERRY.

MITCHELLA REPENS.

JUNE.

PLATE 151.

NEWBERRY'S LEUCAMPYX. LEUCAMPYX NEWBERRYI. (SUNFLOWER FAMILY.)

Herbaceous, perennial, a foot or so in height, whole plant covered with loose, deciduous wool; stem branching, leafy below, naked above; leaves twice or thrice pinnatifid; heads terminating, the branches rather large; involucre of few, membranaceous bracts; rays nearly an inch long, cream-colored, or yellow at first.



AN odd relative of the Chamomile, Mayweed and Yarrow has been found in the Northwest and in some of the Western States and Territories, Colorado and New Mexico, particularly. It was first collected by Dr. John S. Newberry, long Professor of Geology at Columbia College, and an ardent botanist as well. To him Torrey dedicated the curious leafless parasitic herb of the Pinesap Family,—*Newberrya Congesta*,—a plant of Washington and Oregon. He found the *Leucampyx* in Southwestern Colorado, and Gray called it *Newberryi* in his honor.

It is a remarkable plant, the *Leucampyx*. The leaves and stems are covered over with a loose white "wool," giving a hoary look to the plant. The heads are on long naked stalks. They are quite large, somewhat resembling those of the Yarrow, magnified. They have a circle of broad rays, usually light yellow at first but soon fading to a dirty white, surrounding a disk of the same color. *Leucampyx* is derived from two Greek words, signifying "white" and "head-band." The bracts or leaves of the involucre surrounding the head are margined with white.

The *Leucampyx* has not been described as possessing odor, though the strong scent characterizing most of its relatives would lead us to expect it.

PLATE 152.

PARTRIDGE BERRY. MITCHELLA REPENS. (MADDER FAMILY.)

Stems slender, creeping and rooting at the joints, smooth; leaves opposite, on slender petioles, small, ovate, obtuse at both ends, obscurely toothed, veiny; flowers in pairs; corolla tubular, campanulate, with four spreading lobes, hairy within, pale pink in color; fruit drupaceous, four-seeded, red.



THIS was one of the flowers that Thoreau loved best to meet in his rambles about Walden. In his unique diary of the days of "Summer" he mentions it again and again, ever with a word of praise. Thus, on the twenty-first of June: "*Mitchella* in Deep Cut Woods—probably a day or two. Its scent is agreeable and refreshing, between the may-flower and rum-cherry bark, or like peach-stone meats." This is a very happy characterization of the distinctly hydrocyanic odor of the *Mitchella* blossoms. Two days later we find this entry: "The pretty little *Mitchella Repens*, with its twin flowers, spots the ground under the pines, its downy-petalled, cross-shaped flowers, and its purplish buds."

The Partridge Berry is a common forest plant of Eastern North America, sometimes trailing meekly on the ground, more rarely aspiring to an abode on mossy rocks. 'Tis a dainty little plant, with its two flowers so lovingly paired on the same stalk. Sometimes they become Siamese twins, joining as one. The bright red berries, sweetish but flavorless, often last through the whole winter, and are a welcome addition to the scanty fare of the birds, that remain true to the North through all its siege of snow.

PLATE 153.

HERMIDIUM ALIPES. (FOUR O'CLOCK FAMILY.)

Perennial, smooth and more or less glaucous; stem erect, branching, one foot high; leaves opposite, on short petioles, ovate, subcordate, obtuse or nearly so at apex, margin entire; flowers in simple clusters at the summit of the branches, each subtended by a broad, membranaceous bract, the whole forming an involucre, short-pedicelled, apetalous; calyx campanulate, five-lobed.



UNTIL within a generation or two the conceit was cherished that flowers were chiefly made for man. That conceit has vanished as one explorer after another has found scores of beautiful blossoms in the deserts and wildernesses of our country, where, probably, no human foot had ever trod before. In a philosophy which has discarded presumption in gaining knowledge, flowers live, first for themselves,—incidentally, and only incidentally, serving man by their use, or delighting him with their beauty. *Hermidium Alipes* is an odd plant, and very handsome withal. Quite succulent and smooth, the stem and leaves are covered with a light bloom.

The large flowers, in clusters of four to six, are surrounded by a cup-like envelope of broad thin leaves. Like all the Four-O'Clock Family, there is no true corolla, but the funnel-shaped calyx is colored so as to resemble one. It is of a delicate purple hue. The *Hermidium* has the elegant appearance that very smooth plants often have, whether gracefully formed or not. It is too rare and little-known to have received a christening in plain English.

The Four-O'Clock Family contains many very beautiful plants. The common Four-O'Clock of the gardens, *Mirabilis Jalapa*, is remarkable not only for the fragrance and beauty of its blossoms, but for their disposition to open almost invariably at about four-o'clock in the afternoon. Most of the family are night-bloomers.

PLATE 154.

ANEMONE. *ANEMONE CANADENSIS*, *PENNSYLVANICA*. (CROWFOOT FAMILY.)

Stem erect from a short, perennial rootstock, dichotomously branched, more or less pubescent, one or two feet high; radical leaves long-petioled, deeply cleft and toothed; stem leaves sessile, three-cleft; flowers on long peduncles; sepals five, obovate-oblong, whitish; petals none.



DAINTY, indeed, is the little Wood Anemone that nods to the side-glances cast through woodland aisles by the early spring sun, making way in the woods of midsummer for less delicate and bolder sisters. One of these—the Canada or Pennsylvania Anemone—is not a rare plant in the forests of the North, but ventures southward no further than Pennsylvania and Illinois, so that its older name, *Canadensis*, is the more appropriate. It is found far up into the bleak Northwest, seeming to revel in the cool shades of boreal forests. It is not a striking plant, this Anemone. The forking stems end in solitary, rather large flowers of an indistinct white, almost cream-color. The leaves are rather prettily shaped, somewhat like those of the garden Aconite. Like the Hepatica, the Marsh-Marigold, and so many of the Crowfoot Family, the Anemones have no real corolla, only a calyx cunningly fashioned to do duty for the absent row of petals.

Our Anemones, pure and dainty as some of them are, are never so showy as some of the South European species, and those of Western Asia. Some of these exotic kinds are much cultivated, and always excite admiration for their brilliancy of hue.



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HERMIDIUM ALIPES.



— 154 —

ANEMONE.

ANEMONE CANADENSIS (PENNSYLVANICA.)

JUNE.

STAR-GRASS. HYPOXIS ERECTA. (AMARYLLIS FAMILY.)

Acaulescent perennial, leaves and scapes rising from a small round corm, somewhat scaly; leaves long, linear, grass-like, exceeding the scape, more or less hairy; scapes bearing a few long pedicelled flowers at summit; perianth-segments six, villous and green without, bright yellow within.



HOREAU, to whom we may always turn when wearied with the dry technicalities of the botanists, sure of sympathetic thoughts about the flowers, has coined a pretty name for this almost nameless plant. "The yellow Bethlehem-Star," he writes, "is of a deeper yellow than the cistus, a very neat flower, grass-like." The true Star of Bethlehem (what a pretty thought-freighted name, by the way) is a native of Europe, but is often met with in grassy meadows and roadsides in the eastern part of North America. It has long, narrow, onion-like leaves, and white, almost transparent, six-petalled flowers, each with a green vein in the center.

Besides giving a new name to the Star-grass, the naturalist of Walden has furnished us with a simply-worded portrait of it, much easier of recognition than those couched in the semi-English Latin of the manuals.

Hypoxis Erecta is a small plant. The six divisions of the flower are greenish and hairy without, but bright sulphur-yellow within. Nature is frugal. When the flower is upright and almost closed she puts the bright color on the outside as in the Columbine and Pink-root. But when the blossom is spread out, the inner side of the petals displays the chief decoration.

WATER PLANTAIN. ALISMA PLANTAGO. (WATER PLANTAIN FAMILY.)

Perennial; roots a bunch of fibres; stem thickened at base, smooth; leaves all radical, on long petioles, ovate and cordate at base; main nerves parallel, veinlets reticulated; flowers small in a large panicle; sepals three, green; petals three, white; stamens usually six.



RELATED, and quite closely, to the odd Arrow-Head is the curious Water Plantain. It grows in mud, or the shallow water of ditches and bogs over a large part of the world. The leaves are clustered at the base of the stem. They much resemble those of the common Plantain or Rib-grass (*Plantago*) in form, hence the English name and the specific part of the botanical name. Sometimes the whole plant is under water. In that state the leaves are much narrower. This narrow-leaved form is much more common in Europe than in America.

The flowers are like those of *Sagittaria*, the Arrow-Head, but are much smaller and less showy. They are in a large, open, branching cluster, expanding successively throughout the summer. *Alisma*, of unknown signification, is from the Greek.

Plants are like a good many of the merchant's wares,—they find their way about the country more readily by water carriage than by land. This is eminently true of sea-plants, and is also the rule with those that grow in or near lakes and rivers. Our native species of Crowfoot which grow on the land are almost entirely native, while our aquatic species are most of them found also in Europe. Many other water-plants are in the same case.



— 155 —
STAR-GRASS.
HYPOXIS ERECTA.
JUNE—OCTOBER



— 156 —
WATER PLANTAIN.
ALISMA PLANTAGO.
JULY.

PLATE 157.

CRANBERRY. OXYCOCCUS (VACCINIUM) MACROCARPUS. (HEATH FAMILY.)

Small shrub with slender, creeping, branching stems; leaves alternate, on very short petioles, linear or narrowly elliptical, obtuse at both ends, margin entire, somewhat revolute, shining above, pale beneath; flowers on slender axillary pedicels; corolla lobes four, rolled-back; fruit a four-celled, red berry.



UT few bog plants produce highly esteemed fruit. Still smaller is the number of such plants that are widely cultivated for their ministry to the table,—one of the chief is the larger Cranberry. Its berries are too sour to be much relished uncooked, but are highly prized for sauces and jellies. They are more easily preserved than other small fruits, and so are greatly prized for winter use. The Cranberry has arrived at the honor of almost invariably accompanying the Christmas or Thanksgiving turkey, that famous bird, sedate and solemn when alive, but an indispensable auxiliary to much merrymaking after his departure from this life.

Oxycoccus Macrocarpus is a native of peat-swamps, extending southward to North Carolina and westward to the Mississippi. It is rather common on the Atlantic Seaboard, but becomes scarce in the interior. It puts forth its small purple flowers in early summer, ripening the red juicy berries in October. The slender trailing stems are covered with small, shining, evergreen leaves.

The Cranberry is abundant in New Jersey, where much of the crop raised for the market is produced. Of late years the fruit has been much damaged by a peculiar parasitic fungus, known as Cranberry-scald.

PLATE 158.

ROUND-LEAVED MALLOW. MALVA ROTUNDIFOLIA. (MALLOW FAMILY.)

Root long and thickened; stems ascending or procumbent, branching, striate, more or less pubescent; leaves alternate, on long petioles, orbicular and deeply reniform, crenate, appressed pubescent; flowers on slender, axillary pedicels; sepals five; petals five, delicate, bluish-white; stamens and pistils united into a column.



COMMON as a little weed in waste-ground and gardens that are not too well cared for is the round-leaved Mallow. A native of Europe; it was early brought to this country and cultivated with its sisters, the Musk Mallow and the High Mallow. It was the first to escape from the constraints of the gardener into the lawless freedom of waysides and fields, and to make itself at home there. So it is now the most wide-spread of the European Mallows in this country and comes nearest to being a troublesome weed. One wonders that it was ever thought worthy of a place in the garden. No one would think of cultivating it now—enriched as we are by so many new and beautiful plants. But in the early days of our country, when medicine as an art was primitive, house-wives versed in “herb-doctoring” thought highly of the curative power of mucilaginous drinks made from the juice of the mallow.

Malva Rotundifolia may be easily recognized by its round, long-stalked leaves and its small pale blue or sometimes pinkish flowers. The fruit is peculiar. It consists of numerous flattened seeds, arranged in a circle. Every child has eaten these cheeses, as he calls them. Malva is the Latin form of the old Greek name for these plants.



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CRANBERRY.

OXYCOCCUS (VACCINIUM) MACROCARPUS.

JUNE.



— 158 —

ROUND-LEAVED MALLOW.

MALVA ROTUNDIFOLIA.

JUNE.

PLATE 159.

GROUND IVY. GLECHOMA HEDERACEA (NEPETA GLECHOMA). (MINT FAMILY.)

Stems creeping and rooting at the joints, or merely decumbent, four-angled, his sile; leaves opposite, petiolate, round-reniform, deeply cordate; flowers in whorls in the axils of the leaves, short-pedicelled, calyx tubular, with five awn-pointed teeth; corolla much longer, two-lipped, deep blue.



ORDSWORTH, describing a flower which he does not name, has given us a happy word-picture of the little Ground-Ivy:

"There, cleaving to the ground, it lies
With multitude of purple eyes,
Spangling a cushion green like moss."

The Ground-Ivy doubtless came to us from Europe; yet it is so wide-spread in Eastern North America, and is met with in such remote, out-of-the-way places, one would almost believe it indigenous to our continent. It is a neat, little plant, with its lowly creeping stems adorned with round, heart-shaped leaves and few-flowered clusters of small blue-spotted blossoms. It prefers good fertile soil. Most often it is met with in low, moist woods, where it has small dark-green leaves and pale flowers. A form that loves open meadows and the banks of brooks has longer stems, larger and lighter-colored leaves, and blossoms of a deeper blue. The Ground-Ivy flowers in May and June. It is very appropriately named from its habit of growth and the ivy-like leaves.

One of its English names is Gill-over-the-Ground; another is Ale-hoof. According to Darlington, "the herb was employed in England to clarify and give a flavor to ale until the reign of Henry VIII., at which period hops were substituted."

PLATE 160.

YELLOW WOOD-SORREL. OXALIS STRICTA. (WOOD-SORREL FAMILY.)

Stem usually erect, six inches to two feet high, much branched, hairy or sometimes nearly smooth; leaves on long slender petioles without stipules, tri-foliate leaflets obcordate and wedge-shaped, flowers two or three on long, filiform peduncles; sepals five; petals five; dimorphous, i. e., with long styles and short stamens or vice versa.



He who knows

"The love
Of rivers, woods and fields,"—

and searches them with patient care for the beauties they conceal, sees many things that escape the heedless eye. The faint tinge of red or purple that covers the grass under-foot when in flower, the yellowing of the pollen-covered cedar, are missed by a thousand where they are observed by one. Small plants, perfectly beautiful in their way, are unnoticed save by those who know where to look for them. Such a flower as the Yellow Wood-sorrel, cowering in deep shades, nestling in grassy fence-corners—few, indeed, think of stooping to examine the pretty three-parted leaves and the dainty blossoms.

The species of Oxalis have an exceedingly clever device for preventing close or self-fertilization, that is, for keeping the pollen from falling on the stigma of the same flower. Either the styles are long and the stamens are short, or the styles are short and the stamens long. Hence, the aid of insects must be invoked and cross fertilization is secured.

The crisp, acid taste of the Wood-sorrel is familiar. It is due to the presence of small quantities of oxalic acid. Much the same tart quality extends to the Sheep-sorrel, a very different plant.



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GROUND IVY.

GLECHOMA HEDERACEA. (NEPETA GLECHOMA)

MAY.



— 160 —

YELLOW WOOD-SORREL.

OXALIS STRICTA.

JUNE.



— 161 —

MARIPOSA LILY, BUTTERFLY TULIP.
CALOCHORTUS VENUSTUS.



— 162 —

LONG-TUBED RUELLIA.
RUELLIA CILIOSA.

JUNE.

PLATE 161.

MARIPOSA LILY, BUTTERFLY TULIP. *Calochortus venustus*. (LILY FAMILY.)

Smooth perennial; stems erect from a scaly bulb, flexuous, sparingly branched; leaves few, narrow, linear; flowers large, solitary at the ends of the branches; segments of the perianth six, the outer three narrow, green, leaf-like, the three inner broad, concave, with a peculiar glandular, hairy depression near the base.



N the face of the globe no other area of equal size can show as many strangely fashioned flowers as California. Hers is a vegetation unlike any other in the world, peculiar and almost a thing apart. To behold it is in Chalmers' phrase to feel "the expulsive power of a new affection."

A plant that is always identified with California is the superb Mariposa Lily, *Calochortus venustus*. It is a native of the coast mountains, almost throughout the length of the State. The stem, leaves and bulb are somewhat like those of the onion, but the blossom is unique. The three outer leaves or sepals are green and inconspicuous, but the three large, hollow petals are exceedingly showy. They are usually purple in color, varying from almost white to a deep, rich lilac. The markings are striking and characteristic. Near the summit of the petal is a reddish-purple spot, rather faint in outline. In the centre is a crimson-brown dot, bordered with bright yellow. At the base is a cavity containing a gland, covered with delicate hairs. Altogether there is a striking similarity to the markings on the feathers of a peacock, or rather to the circular spots on the wings of many butterflies. So the name Butterfly Tulip is a very appropriate one; for here, as elsewhere, mimicry in nature crosses the boundaries we set up between her kingdoms, animal and vegetable.

PLATE 162.

LONG-TUBED RUELLIA. *Ruellia ciliosa*. (ACANTHUS FAMILY.)

Perennial; stems rising from a knotted, rather woody root-stock, hairy like the whole plant, much branched; leaves opposite on very short petioles, ovate, obtuse; flowers clustered in the leaf-axils; calyx lobes bristle-pointed; corolla with a long slender tube and spreading, funnel-shaped border.



HE *Acanthus* is a well-known genus of Old World plants remarkable for the beauty of their foliage. The Greeks admired the form of the leaves and imitated them in art. It is said that the idea of the capital of the graceful Corinthian column, so much used in the later Hellenic architecture, was suggested by a basket of *Acanthus* leaves on a grave near Corinth. We have many representatives of the family in America, especially in tropical regions. Outside the torrid zone there are comparatively few.

Our showiest genus of this family is *Ruellia*, named by the old French botanist, Plumier, for a compatriot, Jean Ruelle. The flowers are usually purple-blue, occasionally white. They are something like those of the Four-o'clock in shape, long tubed, with a wide border. One southwestern species is night-flowering.

Ruellia ciliosa is a purple-flowered species, common in dry soil in eastern North America, flowering in mid-summer. It runs into many varieties, some of them quite dissimilar in appearance. Like so many other plants, it produces two sorts of flowers, the large showy ones designed for insect cross-fertilization, and the small, apetalous blossoms which are close-fertilized. In case anything happens to the first, the plant is still sure of producing seed.



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ROUGH HEDGE-NETTLE.

STACHYS ASPERA.

JUNE



— 164

ZYGADENUS

ZYGADENUS GLAUCUS

JULY

PLATE 163.

ROUGH HEDGE-NETTLE. STACHYS ASPERA. (MINT FAMILY.)

Stem erect, one to three feet high, four angled, angles retrorsely hispid; leaves opposite, short-petioled, ovate, crenate, acutish at apex, rounded at base, pubescent; flowers in whorls in the axils of the uppermost, bract-like leaves; corolla irregular, two-tipped, much exceeding the five-toothed, campanulate calyx.

"Now autumn's fire burns slowly through the woods,
And, day by day, the dead leaves fall and melt,
And, night by night, the monitory blast
Wails in the key-hole, telling how it pass'd
O'er empty fields, or upland solitudes,
Or grim wide wave; and now the power is felt
Of melancholy, tenderer in its moods
Than any joy indulgent summer dealt."—WILLIAM ALLINGHAM.



F all our Hedge-nettles this is, perhaps, the most common. In low, shady, moist woods, or on the banks of brooks, *Stachys aspera* is to be met with late in the season. For it is in August and September, when the leaves of Willow and Button-wood are turning sere and yellow, when locusts and grasshoppers swarm in the parched grass-fields, and the world looks faded and old, that the small pink-purple blossoms of this Hedge-nettle expand—as if to cheer the waning year in its melancholy. It is frequent over a great part of North America, especially in the northern part and southward in the mountains.

It is an odd fact that while plants covered with much soft hair or down are mostly dwellers in dry, sun-exposed places, those that have angled stems, with stiff, bent-back hairs or prickles on the angles are, in the main, marsh-growers. Most of the Bedstraws—the Marsh-bellflower, the Tear-thumb that grows in tangled masses over the low swamp vegetation, well fixed by its prickly holdfasts—go to prove this rule. In the case of all these plants, which have stems too weak to stand erect, yet are not provided with tendrils or rootlets for climbing, the advantage of the contrivance is plain. But why it should benefit stiff, upright plants like the Hedge-nettles to be so furnished, we cannot, as yet, understand.

PLATE 164.

ZYGADENUS. ZYGADENUS GLAUCUS. (LILY FAMILY.)

Smooth; stem erect from a deep, scaly bulb; leaves mostly clustered at the root, long, linear; stem-leaves much smaller, bract-like; flowers on long slender pedicels in a terminal raceme; perianth united with ovary at base, six-parted; segments bearing a large gland at base.



P ERHAPS no family is more uniformly distributed in this country than that of the Lilies. Grant Allen, in his "Flowers and their Pedigrees," argues that wheat ranks by descent as a degraded, degenerate lily. If we agree with him, then indeed is the lily's dominion wide and rich. In ornament, as well as use, the lily tribe holds a lofty place among our plants. In the cool shades of the deep forests of the eastern part of the continent, *Clintonia*, the Lily-of-the-valley, *Unifolium*, the Twisted-stalk, the Bellflower, and the *Trillium* flourish and form a goodly phalanx in the floral beauty of the woods. In the arid, sun-baked deserts of California, Nevada, and Arizona, *Calochortus*, the onion-like *Brodiceas*, the true onions, the *Yuccas*, and like plants, grow in profusion. The allies of the Lily in the East are often fibrous-rooted, exposing much root-surface to the soil even in winter, for there is always plenty of water in the soil. In the southwest, on the other hand, where the rainy season is very short, and air and earth are as dry as a lime-kiln during the rest of the year, these plants have usually thick, bulb-like roots, which pass the dry season in the soil, their moisture snugly housed by the scaly wrappings.

Zygadenus glaucus grows in Canada and New England, thence west to Minnesota and northward. It is not a showy plant, yet it has elegance of form, withal. The flowers are greenish-yellow. The leaves are long and grass-like.



— 165 —

ROCK-ROSE.

HELIANTHEMUM CAROLINIANUM.

JUNE



— 166 —

SQUIRREL CORN.

DICENTRA CANADENSIS.

MAY

PLATE 165.

ROCK-ROSE. HELIANTHEMUM CAROLINIANUM. (ROCK-ROSE FAMILY.)

Stems erect from slender creeping root-stocks, branching, very hairy; root leaves oblong to obovate, stem leaves alternate, short-petioled, elliptical-lanceolate covered with stiff hairs; flowers few, large and showy, with five, obovate, fugacious, yellow petals; stamens very numerous; pod one-celled, many-seeded.



IN its aspect the low country of the Southern States is very peculiar. Almost perfectly flat, the soil, a fine white sand, which the bright summer sun renders excessively disagreeable to the eye, covered with nothing but pine trees, with here and there a swamp where the bald cypress thrives, it is desolate in its monotony. It is a relic of the past, this pine-barren strip along the Atlantic and the Gulf Coast. In its geological horizon it is of the Cretaceous period, the age of gigantic reptiles and great trees of the pine family. The pine and cypress themselves represent a primitive form of life that is on the wane, that must soon follow the uncouth saurians dating from the same era. This strange country hides in its pine forests and sphagnum-covered swamps the most characteristic vegetation in eastern North America, a vegetation least adulterated with Old World types.

A pretty flower of early spring in this part is the Carolina Rock-rose, *Helianthemum carolinianum*. It much resembles its sister, the Frost-weed, but is of humbler growth. The stems are less rigid and the leaves fewer and broader. The flowers are large and handsome, and bright yellow. The petals last but a short time, soon dropping off.

PLATE 166.

SQUIRREL CORN. DICENTRA CANADENSIS. (FUMITORY FAMILY.)

Acaulescent, leaves and scape rising from slender root-stocks which bear small, rounded, yellow, clustered tubers; leaves long-petioled, whitened beneath, ternately much dissected; flowers few, short-pedicelled in a nodding raceme, very irregular; petals four, partly united, forming a heart-shaped corolla two-spurred at base.



AN odd, pretty little plant of our spring woods is the Squirrel Corn, *Dicentra Canadensis*. The leaves and flower-stalk rise from a cluster of small, round, bright-yellow tubers, hence the quaint popular name. The leaves are on separate stalks, very finely divided and whitened on the under surface—delicate leaves, well suiting the dainty flowers. These are very odd, like those of the related species, the Bleeding-heart of the garden, on a small scale. They are heart-shaped, with two spurs projecting in opposite directions at the base, and almost pointed at the apex. They are whitish in color, the tips tinged with purple. The odor is delicate and delightful, with a faint suggestion of that of the Hyacinth. Few perfumes cannot be compared with others. Says Emerson:

"By fate, not option, frugal Nature gave
One scent to hyson and to wall-flower."

Yet no two odors are exactly alike. Nature is economical, like a clever housewife, who can make two dishes from the same fruit, alike yet different to both eye and palate.

Much like the Squirrel Corn is the quaint Dutchman's Breeches, which has broader flowers, not fragrant, and a scaly bulb instead of clustered tubers.



— 167 —
 DEER GRASS, MEADOW BEAUTY.
RHEXIA VIRGINICA.
 JULY AUGUST.



— 168 —
 POISON IVY, POISON OAK.
RHUS RADICANS.
 JUNE

PLATE 167.

DEER GRASS, MEADOW BEAUTY. *RHEXIA VIRGINICA*. (MELASTOMA FAMILY.)

Root thickened; stem branching from near the base, twelve to eighteen inches high, more or less hirsute; leaves opposite, nearly sessile, ovate, acute at both ends, sharply serrate, with three prominent veins; flowers in loose cymes terminating the branches; petals four; stamens eight.



EACHING its great development in the tropics is a family of handsome plants, represented with us by the pretty *Rhexias* or Deer Grass. They are plants of moist meadows and bogs, mostly along the Atlantic seaboard and in the Southern States that are laved by the Gulf of Mexico. The flowers are large and handsome, pink or purple in most kinds; yellow in a species that grows in the pine-barrens of the South.

Rhexia Virginica is the most common species, growing in grassy, moist ground from Canada southward to Florida, and west to Louisiana and Missouri. The blossoms open in midsummer, lasting but a short time. The four large petals are bright rose-purple in color, well set off by the large, golden-yellow stamens. The veins of the leaves are parallel, at least the larger ones, giving a characteristic appearance to them. The margins are fringed with tiny hairs.

The odd, urn-shaped seed pods are mentioned by Thoreau: "The scarlet leaves and stem of the *Rhexia*, some time out of flower, make almost as bright a patch now in the meadow as the flowers did. Its seed vessels are perfect little cream pitchers of graceful form."

PLATE 168.

POISON IVY, POISON OAK. *RHUS RADICANS*. (CASHEW FAMILY.)

Low shrub or woody climber; stems trailing, erect or climbing high; leaves alternate, long-petioled, pinnately trifoliate; leaflets ovate, acute, terminal stalked, lateral nearly sessile, margin entire, serrate or toothed; flowers in small, axillary, thyrsoid panicles; petals five; stamens as many; fruit, a small drupe.



KNOWN as Poison Ivy when it grows as a climber, and as Poison Oak, especially in the South and West, when it is an upright or creeping shrub, *Rhus radicans* is one of the commonest and most justly hated of weeds. In spring the young copper-colored, shining leaves are very tempting to the eye, the bunches of white berries in autumn are no less pretty; it is undeniably a handsome plant. Yet for all that we would thankfully see it disappear forever from grove and field and wayside—its beauty is but the allurements of a poisoner. It is because of its venomous properties that we object to this plant, and its still more virulent sister, the Swamp Dog-wood. The cause of its poisonous action on the skin with which it comes in contact was long a mystery. As a rule it is only the most deadly isolated poisons that affect by mere contact. The Poison Ivy holds no fatal alkaloid like those that make belladonna, aconite and nux vomica fatal. The riddle was read when a certain bacterium was found always to accompany this plant. Doubtless it is this tiny organism that enters the pores of the skin and causes the characteristic wart-like swellings by its poisonous excretions.

PLATE 169.

CHOKE-CHERRY. PRUNUS VIRGINIANA. (ROSE FAMILY.)

Shrub or small tree with gray-brown bark; leaves alternate, on long slender petioles, ovate, acute at apex, narrowed or rounded at base, sharply and finely serrate, bright green above, pale beneath; flowers in axillary racemes, small; petals five, white; fruit a small drupe, crimson-red in color.



IT is the Rose Family that furnishes the poetry of diet. The Grass Family, the Pea Family, the Cress Family and others contribute toward the substantial part, but to the family of the Rose we are indebted for many luscious fruits. It is a group of plants very near to us. Many of them have been cultivated the world around since the time "where history blends with the twilight of fable." We love the beauty, the fragrance of these plants. They are not strange and foreign as the Orchids are. We might fill pages with a mere list of the fruits of the Roses that are relished as food. Suffice it to mention the almond, peach, apricot, strawberry, blackberry, raspberry, apple, pear, quince, plum and cherry.

To stop with the last—our native cherries are not good to eat as those we have brought from Europe. The Wild Black Cherry has the pleasantest flavor, yet the fruit is a trifle bitter. It is too small and has too large a stone to be of much value. The Wild Red Cherry has a sour, disagreeable taste. How unpopular the Choke-cherry is, the name forcibly evidences.

Prunus Virginiana is found throughout eastern North America, except in the extreme North and the low country of the South.

PLATE 170.

PRAIRIE CLOVER. KUHNISTERA (PETALOSTEMON) VIOLACEA. (PEA FAMILY.)

Stem erect from a stout perennial root, almost smooth, branching, leafy, spotted with dark-colored glands; leaves also glandular, odd-pinnate, leaflets very narrow, five; flowers in dense capitate spikes; calyx, five-toothed; petals, except the standard which is attached to the calyx, borne on the stamen tube, rose-color.

"Flowers that with one scarlet gleam
Cover a hundred leagues, and seem
To set the hills on fire."



ONLY of this great wide country could Wordsworth have thought as he wrote those lines. They would ill-fit the neatly framed English landscape, unless, perchance, the heath-covered mountains of North Britain were meant. The poet tells us in a note that he has in mind a flower of the hilly country of the South. What it is would be an interesting puzzle, for the mountains of the South are too heavily wooded to be "set on fire" by any flower not borne on a tree. But it would be a happy picture of our broad prairies, where flowers of every color form a single variegated carpet over hundreds of square miles of plain country. Of these none are more showy in mass or beautiful individually than the Prairie Clovers. Like most brilliant flowers, the leafage is subordinated to the blossom. It is the upright spikes of crimson corollas that make the *Kuhnistera violacea* so handsome a plant. The spike lasts long. As we usually find it, there are withered blossoms below, and green unopened flowers at the top, with a circle of newly-opened flowers between.



— 169 —
CHOKE-CHERRY.
PRUNUS VIRGINIANA.



— 170 —
PRAIRIE CLOVER.
KUHNISTERA (PETALOSTEMON) VIOLACEA.

SEA-PINK. SABBATIA CHLOROIDES. (GENTIAN FAMILY.)

Whole plant smooth; stem erect, strict or sparingly branched, leafy below; root leaves spatulate, petioled; stem leaves linear-lanceolate, sessile, the upper reduced to bracts; flowers large, terminating the branches; corolla-lobes usually ten, separate almost to the base, spatulate, mucronate, much longer than the narrow calyx-lobes.

The sweet-briar rose has not a form more fair,
Nor are its hues more beauteous than thine own,
Sabbatia, flower most beautiful and rare!
In lonely spots blooming unseen, unknown.
So spiritual thy look, thy stem so light,
Thou seemest not from the dark earth to grow;
But to belong to heavenly regions bright,

Where night comes not, nor blasts of winter blow.
To me thou art a pure, ideal flower,
So delicate that mortal touch might mar;
Not born, like other flowers, of sun and shower,
But wandering from thy native home afar
To lead our thoughts to some serener clime,
Beyond the shadows and the storms of time.

JONES VERY.



ABBATIA chloroides is a gloriously handsome plant, more handsome even than its congener, Sabbatia stellaris. Along the Atlantic and down by the Gulf Coast as far as Alabama, it is first among the "pleasant flowers" that border the "fair face of water weeds" turned to the sky by the salt-marsh ponds.

The leaves do not attract attention. They are severely simple in their elegance and grace, an effective foil to the superb flowers, as plain gold sets off most advantageously the brightest gems. How may we describe those flowers? We may speak of sepals and stamens, but how convey an idea of the exquisite color and form except by pencil and brush. The petals, usually ten in number, sometimes only eight, occasionally twelve, are of a deep rose color, the hue of the sky,

"As morning drinks the morning star,"

ere the sun has flooded it with his glare of work-a-day yellow. In the centre of the flower-cup is a dainty star of a clear yellow-green color. It is again a color of the heavens, the rare tint sometimes observed in cloud-land just after the sun has gone down. We generally look upon the blue flowers as reflecting the color of the heavens, but why not give the pink, the white, the yellow, some small share in the honor?

SHOWY ORCHIS. ORCHIS SPECTABILIS. (ORCHIS FAMILY.)

Plant perfectly smooth, fleshy; roots fibrous, thickened, clustered; stem bearing two leaves at base and a terminal bracted, few-flowered racemes; leaves broadly ovate, obtuse at apex, tapering toward the sheathing base; flower irregular, ringent, upper lip hood-shaped, lilac-purple; lower lip spreading, white.



MONG all the beautiful members of the genus Orchis which gives its name to the most wonderful of plant families, Linnaeus chose our little species to bear the name *Spectabilis*. The choice has been criticised. Doubtless this Orchis should have been called *Pulchra*—beautiful—rather than *Spectabilis*—showy.

A truly lovely plant is this quaint denizen of rich woods. The cluster of a few large flowers peeps out coyly above the bright green, juicy-looking twin leaves. The blossom is two-lipped, the upper part shaped like a helmet, light purple; the lower lip pure white, open. Orchis spectabilis blossoms in May or in June. Rather a rare plant it is, for, though widely distributed, one does not find much of it in any one place. It grows in the mountains of Georgia, and from there northward to Canada, and beyond the Mississippi. It is usually met with in low woods, but often ventures up on hillsides. It loves to nestle beside some decaying log, feeding on the rich soil formed there.

Orchis is the "belle" among flowers. Surely we would call her so, without the aid of any "language of flowers." She is not a flaunting belle, but one whose beauty is enhanced by not being paraded.



— 171 —
 SEA-PINK.
SABBATIA CHLOROIDES.
 JUNE—AUGUST.



— 172 —
 SHOWY ORCHIS.
ORCHIS SPECTABILIS.
 MAY.

CANADA ROCK ROSE. *HELIANTHEMUM CANADENSE*. (ROCK ROSE FAMILY.)

Stems clustered, branching, very leafy; leaves alternate, from elliptical to oblanceolate, densely pubescent, especially beneath; earlier flowers solitary, with two large petals, usually infertile, with numerous stamens; later flowers smaller, often apetalous, in few-flowered, axillary clusters, mostly fertile, with comparatively few stamens.



CERTAIN herbaceous plants exhibit a curious phenomenon in the late fall. If we examine a Scarlet-sage, the *Salvia coccinea* so popular in cultivation, the morning after the first frost, we shall find the bark cracked near the base of the stem, and crystals of ice protruding. It is that horror of cold weather, the bursting of water-pipes, mimicked in the plant world. The pressure of the sap within the stem has split the bark and, as it flows out, it is frozen in tiny icicles. The Canada Rock-rose is a familiar example of the same resistless force. It is often known as Frost-weed on this account.

Helianthemum canadense is a plant of dry sandy soil, or sandstone rocks, common in eastern North America. It flowers in summer. It is a rather stiff plant, with slender rigid stems and narrow leaves. It is completely clothed with fine hoary hairs. The odd thing about it is that it produces two kinds of flowers. The earlier ones are large, with showy, bright yellow petals and many stamens. These are more ornamental than useful, not often producing seeds. The later ones are small in clusters, often without petals and usually fertile.

DUTCHMAN'S PIPE. *ARISTOLOCHIA SIPHO*. (BIRTHWORT FAMILY.)

Root-stock long, creeping, thickened; stem woody, climbing high; leaves alternate, broadly-ovate or almost orbicular, cordate, shortly-pointed or obtuse at apex, pale beneath; flowers solitary from axillary pedicels with a large leaf-like bract; corolla wanting; calyx tube narrow, bent in the middle, limb flat, spreading.



NAME Nature likes to unbend her dignity and disport herself occasionally—perpetrating oddities in her world of flowers—floral-freaks. Such are the blossoms of most of the Birthwort Family, to which our quaint Wild Ginger belongs. Some of the tropical *Aristolochias* have flowers of enormous, almost grotesque size.

As the North excels in beautiful herbaceous wood-dwelling plants, the South is remarkable for the number and showiness of woody-climbers, in the same way that air-plants reach so great development in the tropics—

“Whose habitations in the tree-top even
Are half-way houses on the road to Heaven.”

Plants to thrive must grow up out of the tangled, sunless jungle. Even as far north as the Southern States, air-plants appear and high climbers are numerous.

The Dutchman's Pipe is a plant of the Appalachian region, ranging from Canada southward, but is most abundant in the mountains of the Virginias and southward. Its woody twining stems ascend trees or even the faces of cliffs to the height of thirty feet or more. The leaves are handsome, round, heart-shaped. But the remarkable flower catches our attention first. It is bent in the middle, and has some faint resemblance to a small pipe's bowl and tube. The tube is pale yellow, streaked and spotted with dark purple. The limb is almost black.



— 173 —
CANADA ROCK-ROSE.
HELIANTHEMUM CANADENSE.
JUNE—AUGUST.



— 174 —
DUTCHMAN'S PIPE.
ARISTOLOCHIA SIPHO.
MAY—JULY.

FALSE VIOLET. RUBUS DALIBARDA. (DALIBARDA REPENS.) (ROSE FAMILY.)

Acaulescent, leaves and flower-stalks rising from slender, creeping root-stocks, pubescent; leaves long-petioled, broadly ovate to orbicular, cordate, obtuse at apex, crenate; flowers on long slender peduncles; calyx usually five-cleft; petals five, white; stamens numerous; fruit consisting of a number of dry, one-seeded drupes.



DIFFERENT plants, distinct as to their families, resemble each other remarkably, affording good illustrations of what Darwin calls "parallel variation," that is of two organisms descending from separate ancestors, but approaching each other in character. The Goat-beard—a large herb of the Rose Family, with a huge cluster of small white flowers—has almost its double in the genus *Astilbe* of the Saxifrage Family. Leaves, flowers, and fruit, and even having the stamens and pistils on separate plants are alike in both.

In *Dalibarda* we have a plant of the genus which contains the Blackberry and Raspberry, resembling a stemless, round-leaved Violet. So great is the resemblance that Michaux, the fine old French botanist and voyageur, christened it "*Dalibarda Violæoides*." It is a plant of Canada and the Northern States, common northward, but not growing further to the south than the mountains of Pennsylvania. It loves to grow in cool, mossy woods, opening its one or two small white flowers in early summer. Even the blossoms are not unsuggestive of those of a white-flowered Violet, while the round, heart-shaped leaves and creeping stems remind us strongly of some of the Violets. It is certainly not much like other species of *Rubus*, and many have considered it distinct from them.

TALL SWAMP-THISTLE. CARDUUS (CNICUS) MUTICUS. (SUNFLOWER FAMILY.)

Stem sometimes eight feet high from a thickened root-stock, angled and striate, leafy; leaves alternate, pinnatifid, segments linear, toothed, spine-tipped; heads few, large; bell-shaped involucre of many imbricated, barely pointed, arachnoid hairy bracts; flowers purple; corollas all tubular; pappus a tuft of white hairs.



RETALIATION is the proverbial idea in connection with the Scotch Thistle. Why should it not apply to all these sturdy herbs, kind to friends, but quick to repel foes? Deal gently with the Thistle, and you need fear it not. Handle it roughly, and it is not slow to give you proof of its power to defend itself.

The thistles, with their soft, juicy stems and leaves, would be victims of every herbivorous animal had they not found how to protect themselves by means of their outworks of spines and prickles. Yet, as plants acquire new means of defense, animals learn to adapt themselves to the changes. Master Donkey has toughened the skin of his tongue and throat, so that the wickedest Thistle is a toothsome morsel to him. They are provident, self-sufficient plants, these thistles. Not only are they well armed, but they have a clever contrivance for spreading themselves over the fields. Their light, plumed seeds are caught up by the lightest breeze, and sail away in search of new homes,

"Maugre the farmer's sighs."

Carduus muticus is a plant of bogs, especially in the northern part of this country. It is a tall Thistle, one of the highest.



— 175 —

FALSE VIOLET.

RUBUS DALIBARDA (REPENS).

JUNE.



— 176 —

TALL SWAMP-THISTLE.

CARDUUS (CNICUS) MUTICUS.

JULY.



— 177 —

COLORADO ASTER.
ASTER COLORADOENSIS.
JULY—AUGUST.



— 178 —

BUR CUCUMBER.
SICYOS ANGULATUS.
JULY.

PLATE 177.

COLORADO ASTER. *ASTER COLORADOENSIS*. (SUNFLOWER FAMILY.)

Stems clustered, low, rising from a thick root, leaves obovate or spatulate, deeply dentate with aristate teeth; heads large, single at the summit of the stems; involucre consisting of numerous closely imbricated, linear lanceolate compound bracts; rays numerous, sometimes as many as forty.



PUZZLING beyond compare are the Asters as a group of plants. There are so many species of them, and they vary so greatly, running into each other almost inextricably, that to distinguish even the common kinds is not always easy. Darwin says in the "Origin of Species," that great store-house of significant facts in biology, that a species belonging to a dominant genus, that is, a genus of many species widely distributed, is apt to produce many varieties. Having overcome all competitors, the members of such a group have leisure to devote themselves to self-improvement. War at an end, the arts of peace enlist activity. Variation increases, and Natural Selection fixes and develops the variations useful to the plant.

The Asters have possessed themselves of the length and breadth of North America. The marshes of the coast know their dominion. Every field, grove, hillside, copse is decked with their gay flowers in autumn. Even the bare, desolate cliffs of the great western mountains show their peculiar, low, stout-rooted Asters. One of these is *Aster Coloradoensis*, which grows at a high elevation. The short, clustered stems bear each its large, violet-rayed head. It is a handsome little plant, lowly but well able to take care of itself in its bleak home.

PLATE 178.

BUR CUCUMBER. *SICYOS ANGULATUS*. (GOURD FAMILY.)

Stem weak, climbing by slender, forked tendrils; leaves alternate, long-petioled, deeply heart-shaped, angulately three or five-lobed, lobes acute, margin dentate; flowers monoecious, the sterile in corymbs, the fertile in heads; corolla five-lobed, open bell-shaped; stamens cohering by anthers into a ring; fruit ovate, covered with prickly hairs.



THIS odd climber is an inhabitant of low grounds by the borders of streams. It occurs sparingly from Canada and New England south to Florida, but is abundant in the valleys of the Ohio and Mississippi and their tributaries. It extends westward as far as Minnesota and Eastern Texas. The greenish white, not showy blossoms begin to open in midsummer, continuing to expand as late as September. The fruit is the most characteristic feature of the *Sicyos*. While the staminate flowers are in loose, open clusters, the pistillate are borne in dense heads. They develop into one-seeded pods, forming collectively a rounded mass, though each is separate. They are densely covered with straw-colored prickles, hence the popular designation, Bur Cucumber. The name indicates the relationship of the plant to the Cucumber. The botanical name, too, is the Greek one for this popular vegetable.

The family of the gourds is sparingly represented in North America. On the western prairies and in the arid desert region of the West, dwell most of our representatives of this group. It is a very useful family, numbering among its members such widely known plants as the gourd, squash, cucumber, pumpkin, melon and water-melon.



— 179 —

STAR-FLOWER.

TRIENTALIS AMERICANA.

MAY—JULY.



— 180 —

ANDERSON'S CROWFOOT.

RANUNCULUS ANDERSONII.

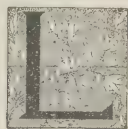
MAY.

PLATE 179.

STAR-FLOWER. *TRIENTALIS AMERICANA*. (PRIMROSE FAMILY.)

Stem simple, smooth, rising from a long, creeping, filiform root-stock; lower leaves minute scaled; foliage leaves in a whorl of five to seven, some of them larger than the others, lanceolate, acute at both ends, sessile; flowers on slender axillary peduncles; corolla rotate, seven-lobed white.

"Where star-flowers strew the rivulet's side."—BRYANT.



LITTLE and piquant is the Star-flower, or Chickweed Wintergreen, as it is sometimes called from a slight resemblance of the flowers to the white blossoms of the Chickweed. It is a native of the northern part of our continent, growing southward along the Blue Ridge into Virginia. It is not a common plant, though abundant in some localities. A peculiar little plant it is. The long, slender underground shoots from which the low stems rise are sometimes two feet long. The leaves are borne in a circle at the top of the stem. There are usually seven, of which three or four are larger than the others. If one holds these leaves to the light, they will reveal a very pretty system of veins. The tiny blossom is borne on a long, slender stalk springing from the axil of the leaf. The flat corolla is white and usually seven-lobed, showing that it first consisted of seven petals, which have united. It is unusual for a plant to have the parts in sevens, thus. Four, or five, or six is a common number in the plan of flowers, but seven petals or stamens rarely occur. Of "The Blessed Damozel," Rossetti tells us that

"The stars in her hair were seven."

PLATE 180.

ANDERSON'S CROWFOOT. *RANUNCULUS ANDERSONII*. (CROWFOOT FAMILY.)

Perennial from a large cluster of thickened, fibrous roots; stem erect, smooth, leafless, or nearly so, one-flowered; root leaves on long petioles, much divided, divisions linear; sepals five, resembling petals; petals large, rounded or obovate; achene inflated; style short, curved.



TO those accustomed to the bright Buttercups that yellow our meadows in May and June, the idea of a pink Buttercup is an absurdity. One might as well talk of blue Roses and red Harebells. We have some Crowfoots that are white-flowered, but pink ones—pshaw! Stop a bit, though. Let us leave our familiar haunts and visit the Great West, home of all that is strange and unaccountable in the flower kingdom. Even pink buttercups grow there.

Ranunculus Andersonii, which, in plain English, we may call Anderson's Crowfoot, is a small plant of the vicinity of the Great Salt Lake, and thence as far west as the Sierras, and straying north, it may be met with. The stem rises from a thick, scaly base, very unlike the ordinary growth of these plants. It is commonly leafless, the leaves being clustered at the root. Occasionally, there is a small leaf on the stem. The flower is the extraordinary part of the plant. It is large and of a deep rose color. Even the sepals are delicate and margined with pink. The fruit, too, inflated and with the seed by no means filling it, is different from that of other crowfoots. It stands quite by itself.

To return for a moment to the colors of blossoms: Grant Allen tells us that, as flowers advance in type, they pass from yellow, which is the lowest color, through pink, red, and lilac, to purple and blue, which are the highest. Hence, until the Rose can display the regal blue, she cannot deem herself the queen of flowers.



— 181 —

EARLY MEADOW-RUE.

THALICTRUM DIOICUM.

MAY.



— 182 —

CLOSED GENTIAN.

GENTIANA ANDREWSII.

AUGUST.

PLATE 181.

EARLY MEADOW-RUE. *THALICTRUM DIOICUM*. (CROWFOOT FAMILY.)

Smooth; root-stock short, thickened, scaly; stem erect, paniculately branched above; leaves on long petioles which are dilated and clasping at base, ternately several times compound, leaflets broadly ovate, deeply lobed; flowers dioecious, forming a large panicle; stamens of sterile flowers drooping on filiform filaments.



OME plants that lack showy, bright-colored flowers, make up for the want by the grace of their foliage and bearing. Such are the Meadow-rues. Their blossoms, green or white, are not handsome when taken individually, yet in clusters they present a very pretty appearance.

"All are needed by each one,
Nothing is good or fair alone."

The leafage has the beauty wherein these plants excel. The leaves are large and cut into many leaflets, like those of the Columbine. They somewhat resemble the delicate fronds of the Maiden-hair Fern. As the stems are often dark brown in color, the likeness is carried a step farther.

The early Meadow-rue is the handsomest of our *Thalictiums*. A sylvan species, flowering in early spring, it is naturally more delicate and graceful than its large, coarse, meadow-growing, summer-blooming sisters. The leaves droop on their stalks. The large clusters of staminate flowers, consisting merely of a small green calyx and a number of stamens with hair-like, down-hanging filaments, add to the pensive, drooping aspect of the plant. The staminate flowers, being little more than stamens, are, of course, yellow. The rather conspicuous, feathery, red-purple stigmas give their color to the pistillate clusters.

Thalictrium dioicum is a plant of rich, wooded hillsides, common in the Eastern States and Canada. It flowers in April and May.

PLATE 182.

CLOSED GENTIAN. *GENTIANA ANDREWSII*. (GENTIAN FAMILY.)

Quite smooth; stem erect, simple, obscurely angled, leafy; leaves opposite, almost sessile, narrowed at base, acute at apex, thick, dark green above, pale beneath; flowers large in axillary clusters; corolla blue with white folds, closed, not lobed, much exceeding the calyx.



ONSPICUOUS in the autumn landscape is this odd flower. Thoreau has given us a picture of it in "Autumn." So well does his description photograph the outward appearance and manner of life of the closed Gentian, that we cannot do better than quote it here:

"Sept. 28, 1858, P.M. To Great Fields via Gentian Lane. The gentian (*Andrewsii*) now generally in prime, on low, moist, shady banks. Its transcendent blue shows best in the shade and suggests coolness; contrasts there with the fresh green; a splendid blue light in the shade, turning to purple with age. They are particularly abundant under the north side of the willow row in Merrick's pasture. I count fifteen in a single cluster there, and afterward twenty in Gentian Lane near Flint's Bridge, and there were other clusters below; bluer than the bluest sky, they lurk in the moist and shady recesses of the banks."

It is such notes as these, jotted down day by day, as the flowers described appear in their order, that bring us into true intimacy with the plant world. It is as easy to become acquainted with a man by examining the structure of his bones and by studying his brain from the physiological standpoint, as it is to know a plant by measuring its different parts and gazing at sections of its stem through the microscope.

"The old men studied magic in the flowers,
And human fortunes in astronomy,
And an omnipotence in chemistry,
Preferring things to names, for these were *men*."—EMERSON.



— 183 —
 CREEPING PHLOX.
PHLOX REPTANS.
 JUNE



— 184 —
 BLUET.
HOUSTONIA CÆRULEA.
 MAY—JUNE.

CREEPING PHLOX. PHLOX REPTANS. (POLEMONIUM FAMILY.)

Stems long slender, creeping; leaves opposite, rather remote, spatulate or obovate, on short ciliate petioles, rounded at apex, acute at base; flowers in cymes terminating erect branches; corolla large, tube long and slender, limb spreading, five-lobed; stamens five, borne on the corolla tube.



WE feel a certain pride in claiming the beautiful genus Phlox all for ourselves. None of the species are found outside of North America. In elegance of form and beauty of coloring 'twould be difficult to find their peers the world over. From the tiny Moss Pink that charitably clothes the ground with its dense mat of stem and leaves and spangles it o'er with bright blossoms, to the tall Phlox Maculata that raises its full cluster of rose-purple flowers in meadows, or the gorgeous Phlox Drummondii that adorns the prairies, all are beautiful.

Phlox Reptans is one of the most elegant of these plants. From New York to Georgia and through wide stretches of Canada, it opens its large, blue-purple, fragrant flowers in moist, springy places along the mountains. Its time of flowering is May. The stems creep along the ground, often to a great length, bearing pairs of bright green leaves at rather distinct intervals. These sterile shoots grow like the Linnaea or some of the Speedwells. But the stalk that bears the flowers rises upward in true Phlox fashion.

In the language of the flowers, Phlox signifies "unanimity." Is it because all are united in admiring the beauty of these plants?

BLUETS. HOUSTONIA CÆRULEA. (MADDER FAMILY.)

Root-stocks filiform; stems tufted, slender, branching; leaves spatulate, the root-leaves on slender petioles; stem-leaves sessile, very narrow; flowers terminating the filiform branches, solitary calyx very small, four-lobed; corolla with a long slender tube and a spreading, four-lobed border.



EMBLEMS of contentment are the meek little Bluets.

"Sweet flower, thou tellest how hearts
As pure and tender as thy leaf, as low
And humble as thy stem, will surely know
The joy that peace imparts."

The lines of Percival might have been addressed to the Houstonia, so aptly do they voice the spirit of this little plant.

Houstonia cærulea is a common plant of fields and roadsides in eastern North America, opening its azure, yellow-eyed blossoms in April and May. Burroughs has a pretty conceit in regard to this flower. "The Houstonia," he writes, "'—innocence'—flecking or streaking the cold spring earth with a milky way of minute stars." It grows in patches, often covering the ground for considerable distances with a sheet of tender, celestial color. It has the same meek, lovable beauty that belongs to the Forget-me-not. The name of "Innocence" is the best that has been given it. The tiny leaves are noticed only when we pull the plant. As it grows, only the blossoms meet our eyes. With what a modest, trustful gaze they look up at us! It is like meeting the eyes of a dear friend to come upon the Bluets in the spring-time.

PLATE 185.

CUT-LEAVED PHACELIA. PHACELIA BIPINNATIFIDA. (WATER-LEAF FAMILY.)

Whole plant hirsute; stem erect, branching, leafy; leaves long-petioled, pinnately divided, the lower five times, the upper three times, divisions variously lobed and toothed; flowers in cymose racemes; corolla short-campanulate, open, five-lobed, purple in color; calyx persistent, surrounding the capsule.



THE Cut-leaved Phacelia is a plant of the mountain region of eastern North America, ranging northwestward into Illinois and Canada. It is especially abundant on the western slopes of the Alleghanies, flourishing on shaded cliffs. In such locations it unfolds its fresh green leaves and clusters of pretty blue-purple flowers, in May and June. The leaves are daintily cut or lobed, giving a delicate, graceful look to the plant. The blossom is an open bell-shape. This Phacelia usually grows in profusion, making one of the most attractive objects of the mountain landscape.

"With wise instinct Nature seems
To harmonize her wide extremes,
Linking the stronger with the weak,
The haughty with the soft and meek."

Often a high cliff of shale or limestone is fairly purple with its flowers. It has but one disagreeable quality. The whole plant, but especially the blossoms, have a strong, unpleasant odor, unlike any other, rank and weed-like in quality.

We have not many Phacelias in eastern North America. The little Phacelia Parviflora, a plant of fertile fields, is common southward. It has pale blue cup-shaped flowers. The most beautiful of our eastern species is the Miami Mist, Phacelia purshii, a flower that fully merits its romantic name. It is a delicate plant of grassy meadows, with blue and white, handsomely fringed corollas. In the West there are a great many species.

PLATE 186.

BIRD'S-FOOT VIOLET. VIOLA PEDATA. (VIOLET FAMILY.)

Perennial acaulescent; root-stock short, truncate; leaves on long, slender petioles, three to five times divided, divisions lobed and cleft, ultimate segments linear; flowers large on long peduncles; corolla with a short blunt spur; petals obovate; stigma large, without a beak.



HAT plants go further toward giving character to the spring flower-life than the Violet? Whether it be the upland beech woods where the Yellow Violet grows, or the mossy bogs, haunt of Bland and Lance-leaved Violets, with their white, blue-veined blossoms, or rich deep woods where the tall Canada Violet loves to dwell, or grassy meadows, home of our dear common blue Violet, wherever any flower may grow,

"Tints that spot the violet's petal."

Sandy fields and dry, pine-covered hillsides have their Violet too, the handsomest, gayest violet of all. 'Tis the beautiful Bird's-foot, with its parted leaves and great lilac-colored flowers. On dry shaly hills a variety is sometimes found with the two upper petals of a rich, dark, velvety purple, the other three retaining the ordinary lilac color—a truly royal flower. The leaves are cut into narrow segments, radiating outward something like the toes of a bird's foot—hence the popular name.

The Bird's-foot Violet is a common plant in the sandy soil of the low-lying coastal plain, and on hillsides further west. It is found from the Atlantic, northwestward to Minnesota, thence, more abundantly, southward to the Gulf. In April and May, when

"Fresh grasses fringe the meadow brooks,
Then mildly from its sunny nooks
The blue eye of the violet looks."



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CUT-LEAVED PHACELIA.

PHACELIA BIPINNATIFIDA.



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BIRD'S-FOOT VIOLET.

VIOLA PEDATA.

PLATE 187.

NEVADA WILD ONION. *ALLIUM NEVADENSE*. (LILY FAMILY.)

Perfectly smooth; scape not more than three inches high, rising from a many-coated bulb; leaf single, filiform; longer than the scape; flowers in a terminal umbel; white or pinkish; sepals six, lanceolate, acute; stamens included, six in number.



ANY Wild Onions are found in North America, especially in the Rocky Mountain region and in the desert country of the Southwest. But even on the Atlantic seaboard there are a very respectable number of them. *Allium Tricoccum* is a common kind in the northeastern part of the country, occurring along the mountains down to the far South. It has a large white bulb of a mild, pleasant flavor, very popular as a vegetable in the Alleghanies. *Allium Cernuum* occurs over a great part of the continent. It is one of the handsomest of the Onions, with large pale pink or rose-color flowers. *Allium Canadense* is the Common Wild Onion of meadows and pastures, whose flavor is such an unwelcome intruder in spring milk and butter.

The Nevada Wild Onion is a plant of the western mountains. It is found in Utah, and westward to the eastern slopes of the Sierra Nevada in California. It is a low plant, only two or three inches high. The stem bears but a single leaf and a cluster of white and faintly pink blossoms. This onion is popular with the Indians. The Utes eat the bulb, which passes with them by the name of "urge."

PLATE 188.

SKULLCAP. *SCUTELLARIA GALERICULATA*. (MINT FAMILY.)

Smooth or slightly pubescent; stem erect, much branched, not exceeding two feet in height; leaves opposite, short-petioled, oblong ovate; flowers large, axillary; calyx small two-lipped; corolla labiate, lower lip much larger than the arched upper one, emarginate; stamens four, concealed by the upper lip.



HANDSOMEST, or among the handsomest, of the genera of the Mint Family is *Scutellaria*. The two-lipped flowers are usually large and showy, the leaves and the cut of the whole plant neat and graceful. The color of the blossoms is bright blue, usually variegated with white. The most beautiful of our eastern species is *Scutellaria Integrifolia*, a plant that grows impartially in dry open woods, and in moist, grassy meadows, throughout the greater part of eastern North America. The small *Scutellaria Parvula* has pretty little blue flowers. The Mad Dog Skullcap is an odd plant of ditches and banks of streams, flowering in late summer. The Rock Skullcap, *Scutellaria Saxatilis*, is a delicate species with creeping or erect stems, round, heart-shaped leaves, and blue and white flowers, a rare plant and very beautiful.

Scutellaria Galericulata, so called because of the helmet-shaped upper lip, is a common plant of moist ground in the North, and is occasionally met with in the mountain regions southward. It is a handsome plant with dark green leaves and large, bright blue flowers, opening in July and August.

The name *Scutellaria* has reference to the shape of the calyx in these plants. It has a flattened appendage that has the appearance of a "small vessel."



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NEVADA WILD ONION.

ALLIUM NEVADENSE.

MAY—JUNE.



— 188 —

SKULLCAP.

SCUTELLARIA GALERICULATA.

JULY.

TWO-LEAVED MITRE-WORT. MITELLA DIPHYLLA. (SAXIFRAGE FAMILY.)

Perennial, appressed pubescent; root-stalk scaly, thickened; stem erect, unbranched, wand-like; root-leaves broadly ovate, usually five-lobed, long petioled; stem leaves two, almost sessile, opposite, three-lobed; flowers small, white in a long, slender terminal raceme; calyx five-parted; petals five, lacinate; fruit a capsule, two-beaked by the persistent styles.



N May time, while

“The stir
Of the soft breeze ruffling the meadow flowers”

brings down showers of white and pink from blossom-laden trees, and sighs amid the tender green of newly-opened leaves, a dainty little plant appears in fertile shades. A cluster of long-stalked heart-shaped leaves it has, and from the midst of these rises a slender stalk. Two leaves stand opposite each other midway on the stem, which ends in a long, wand-like cluster of small white flowers. Pretty blossoms they are, though so tiny. The five petals, delicate and soon falling, are cut and fringed. When the blossoming time has passed, the capsule opens, disclosing a number of minute, black, shining seeds. It is an odd seed-vessel, that of the *Mitella*. It is shaped something like a cap or mitre, hence both English and Latin names. Bishop's Cap it is sometimes called. A nearly related plant, the False Mitre-wort, a handsome plant with heart-shaped, brown-marked leaves and a close spike of feathery white flowers, is known as *Tiarella*, the “Little Tiara.”

Mitella Diphylla is scattered but found in profusion from the eastern borders of the United States and Canada, thence westward to Missouri and south to North Carolina. The specific name *Diphylla* alludes to the twin stem leaves.

COMMON MILKWEED. ASCLEPIAS SYRIACA (CORNUTI). (MILKWEED FAMILY.)

Stem tall, stout, erect, leafy; leaves opposite, the uppermost alternate, short petioled, oblong or ovate-oblong, rounded or acutish at base, mucronate at apex, tomentose beneath; flowers numerous in axillary, stalked umbels; calyx and corolla five-parted; stamens united into a tube surmounted by a five-lobed crown.



OWN in the bottom-lands, or along roadsides and in meadows, tiny seeds with white, silken plumes are caught up merrily by the wind and are borne far and wide over the country-side. These are the seeds of the Milkweed, furnished, like the Thistle seeds with a well-contrived parachute. There is a difference, though. In the Thistle, the soft white bristles represent the lobes of the calyx, the tube being grown to the seed. But in the Milkweed, the silky hairs are growths from the coat of the seed, within the pod. This pod is boat-shaped and pointed, opening along one side only.

Asclepias Syriaca, the Common Milkweed, is a tall showy plant, decidedly handsome in appearance. 'Tis a native of eastern North America, though Linnæus thought it belonged to Western Asia when he named it. It is a common weed, flowering in early summer, and ripening its seeds by the beginning of autumn. The stout stem is full of white, sticky, milk-like juice that exudes copiously when the plant is wounded.

There are a large number of other milkweeds, some very handsome. The Butterfly-weed, *Asclepias Tuberosa*, is one of the gaudiest flowers of summer fields.



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TWO-LEAVED MITRE-WORT.

MITELLA DIPHYLLA.

MAY.



— 190 —

COMMON MILKWEED.

ASCLEPIAS SYRIACA (COCNUTL.)

JUNE.

PLATE 191.

ABRONIA TURBINATA. (FOUR O'CLOCK FAMILY.)

Whole plant covered with short, viscid pubescence; stem erect or procumbent, much branched; leaves opposite, one smaller than the other, long-petioled, obtuse at apex, rounded and unequal at base; flowers in a head, surrounded by a many-leaved involucre; corolla none; calyx salver-shaped, with long tube and five-lobed border.



AMONG the many curious flowers that inhabit the hot plains of the great Southwest, none are more peculiar than the different members of the Four O'Clock Family. Mirabilis—"wonderful"—Linnaeus named the best known genus of the family, that to which our familiar garden friend, the Four O'Clock itself, belongs. Truly these are wonderful plants. The flowers are as gay and delicate as any, yet they have no petals. It is the calyx, usually green and inconspicuous, the weather-beaten outside of the flower-home, that takes on the bright colors usually peculiar to the corolla. The fruits are odd, winged and surmounted by the withered flowers. Then, the time of flowering of many of these plants, when all respectable plants are thinking of putting up the shutters and going to bed, has something weird about it.

Abronia is a genus of which there are many species in the Western States and Territories. The flowers are not so large as those of the Four O'Clock and other relatives, but make up for their smallness by their greater number.

Abronia turbinata is a beautiful plant, a native of California, Nevada and eastward to Texas. It has rose-colored, fragrant blossoms.

PLATE 192.

WILD CLEMATIS—VIRGIN'S-BOWER. CLEMATIS VIRGINIANA. (CROWFOOT FAMILY.)

Perennial; stems somewhat woody, slender, twining; leaves alternate, long-petioled, ternate; leaflets ovate, somewhat lobed, coarsely toothed, pointed; flowers numerous in open paniced cymes; petals none; sepals four, white; stamens numerous; achenes tipped with the long plumose styles.

"The favor'd flower

Which boasts the name of Virgin Bower"



IS one of the plants wherewith the Minstrel of the North decks the island bower of his fair Lady of the Lake. The European Virgin-Bower, or Traveler's Joy, is a common hedge plant in the Old World. Its stems are loaded with a profusion of fragrant white flowers. It has become the emblem of safety—why, it would be difficult to fancy. In this country we have a nearly allied Clematis, Clematis Virginiana. It possesses most of the attributes of the Traveler's Joy, weak stems that recline in tangled masses on shrubs and tall herbs along streams, bearing great clusters of yellow-white flowers. These blossoms are scented, but not so sweetly as are those of the Old World species. They are great favorites with the bees, when Clover and Linden blossoms are withered and gone. On any bright, warm day in August one may find the Clematis flowers fairly dark with the honey-gatherers. The plant is not less beautiful in fruit than in flower. The fruits are plumed with long, silvery, silken tails, which are curled one around the other. The whole cluster looks like a "St. Catherine's Wheel." A plant loaded with these heads demands the artist's brush to depict it; words are unequal to the task.



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ABRONIA TURBINATA.
(FOUR O'CLOCK FAMILY.)
JULY—AUGUST



— 192 —

WILD CLEMATIS—VIRGIN'S BOWER.
CLEMATIS VIRGINIANA.
JULY—AUGUST.



— 193 —

PICKEREL-WEED.
PONTERDERIA CORDATA.
JULY—SEPT



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PAINTED CUP.
CASTILLEIA COCCINEA.
JUNE—JULY.

PLATE 193.

PICKEREL-WEED. *PONTEDERIA CORDATA*. (PICKEREL-WEED FAMILY.)

Aquatic; stem and long-petioled root-leaves rising from a stout, creeping root-stock; stem-leaf solitary, rather long-petioled, the base of the petiole sheathing the stem; ovate, heart-shaped at base, obtuse at apex; flowers in a terminal spike from a sheathing bract; perianth irregular, funnel-shaped, two-lipped, of six partly united segments.

"July 1, 1852.—The rich violet purple of the *Pontederias* was the more striking as the blossoms were still rare. Nature will soon be very lavish of this blue along the river sides. It is a rich spike of blue flowers with yellowish spots. Over all these flowers hover devil's needles in their zig-zag flight."—THOREAU, "Summer."



MORE striking and characteristic water-plant than the Pickerel-weed is not found in North America. Throughout the eastern part of the continent, as far westward as the Canadian Northwest, Minnesota and Texas, the *Pontederia* grows. It is for the most part a coast plant, common along the Atlantic seaboard and the Gulf. 'Tis comparatively rare in the interior. No one plant among the denizens of our ponds and shallow, sluggish streams, is more distinctly individual. No other goes so far in giving tone and character to our aquatic vegetation.

"Gold-moth-haunted beds of Pickerel-flower," make bright the surface of the trout-haunted pond in the forests of Canada and Maine, and gladden the dark bosom of the Georgia pine-barren pool. In the southern part of its range, the Pickerel-weed commences to blossom late in May, and in the North it is still flowering in September. The individual blossoms last only a short time, but it is a long while before all in the cluster have expanded.

PLATE 194.

PAINTED CUP. *CASTILLEIA COCCINEA*. (FIGWORT FAMILY.)

Root parasitic; stems branching from near the base, erect, somewhat angled, pubescent, often purplish; root-leaves rosulate, oblong-ovate to spatulate; stem leaves alternate, lobed, or parted; flowers in terminal, bracted spikes; bracts usually scarlet, more conspicuous than the yellow and red, deeply two-lipped corolla.

"The fresh savannas of the Sangamon
Here rise in gentle swells, and the long grass
Is mixed with rustling hazels. Scarlet tufts

Are glowing in the green, like flakes of fire;
The wanderers of the prairie know them well,
And call that brilliant flower the Painted Cup."—BRYANT.



THE interchangeability of parts to be observed in the plant-life of glade and meadow is very striking. In the *Trillium*, for example, whether a petal shall remain a petal, or slide back to its first estate as a leaf, is a matter wholly within the decision of a heavy rain-fall. In many blossoms it is the calyx, in many others the corolla, that is gaudily painted as the inn-sign for hungry and thirsty insects. In a third and large class of plants we find the brightest color is lavished not on the blossoms at all, but on the leaves that subtend the flower or cluster of flowers. In many *Euphorbias* the floral leaves are tinged with brilliant hues while the flowers themselves are insignificant. In the often cultivated *Euphorbia Marginata*, now pretty well naturalized in many parts of North America, the uppermost leaves are streaked with snowy white. In some tropical species brilliant shades of red, color these leaves. Again, in the *Arum* Family, it is the spathe or flower-leaf rather than the blossoms that appeals to the sense of sight, purple or mottled in the *Skunk-cabbage*, white in *Calla Palustris*.

In the Painted Cup we have a remarkable instance of this shifting of color from flower to leaf. The corolla of the *Castilleia* is pale yellow or reddish in dye, but the bract that accompanies each flower is of a livid scarlet. *Castilleia Coccinea* flourishes from Canada to Texas, blossoming in summer.



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MOHAVEA BREVIFLORA

(FIGWORT FAMILY.)

JUNE—AUGUST.



— 196 —

TWIN-FLOWER.

LINNÆA BOREALIS.

JULY.

PLATE 195.

MOHAVEA BREVIFLORA. (FIGWORT FAMILY.)

Low, annual; stems slender, usually branched from the base; lower leaves opposite, the upper alternate, lanceolate, pointed at both ends, short-petioled; flowers axillary on short peduncles; calyx lobes five, narrowly oblong; corolla small, two-lipped with a rather conspicuous hairy palate; three of the five stamens rudimentary.



MOST industrious traveler in the great West was Colonel, afterwards General Fremont. In 1842 he commanded a party which traveled from Missouri to the Wind River Mountains. The expedition returning reached Missouri only four months after starting. In the following year a more extended journey was undertaken. This time California and Oregon, then almost unknown to English speaking people, were reached and partly explored. Several accidents befell the party on the homeward path, and finally, a large part of the botanical collections were destroyed by a sudden rising of the Kansas River. What remained proved of great interest and value. A careful report on the plants collected was written by Dr. Torrey.

An unknown plant was discovered by the party on the banks of the Mohave River in California. This was described as a new genus by Dr. Gray. Until recently only one species of *Mohavea*, the *Viscida*, was known. It is a native of California and Arizona, blossoming in Spring. The flowers are yellow, dotted with purple. A second species has been collected during the Death Valley expedition, a plant with yellow flowers, obscurely dotted, sometimes not dotted at all, both are small, branching plants, not showy. *Mohavea Breviflora* was found at several points in the Death Valley. We would not be surprised to hear of this plant from British Columbia.

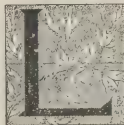
PLATE 196.

TWIN-FLOWER. LINNÆA BOREALIS. (HONEYSUCKLE FAMILY.)

Sparingly pubescent, perennial; stems slender creeping, somewhat woody, leafy; leaves opposite, petioled, ovate or obovate to obicular, slightly crenate, shiny, thickish; flowers slender pedicelled, in pairs on a long, braced peduncle; calyx small, five-toothed; corolla pale pink, campanulate-funnel-form, five-lobed, almost regular.

"He saw beneath dim aisles, in odorous beds,
The slight *Linnæa* hang its twin-born heads;
And blessed the monument of the man of flowers,
Which breathes his sweet fame through the northern bowers."

EMERSON.



LET whoever questions whether Emerson was a poet, find four lines from any other singer that describe a flower more beautifully. And no flower is better worthy to be beautifully described. Not only in its pure loveliness, but in its association with the man who gave to botany a form and a purpose, it belongs apart.

It is this shy creeping plant of the family of the Honeysuckles that the great Linnæus "the man of flowers," chose to bear his name. It formed part of the armorial bearings of his family, and was adopted by the Linnæan Society of London upon their coat of arms. Truly this small plant has been highly honored, yet with what a graceful modesty it bears its fame!

The *Linnæa*, as it should be, is found in the northern part of the North Temperate Zone, the world around. On the steppes of Siberia, in the pine forests of Norway, among the hills of Scotland, by the lakes of Maine and of Canada, *Linnæa Borealis* is still at home.



— 197 —

ARIZONA SISYRINCHIUM.

SISYRINCHIUM ARIZONICUM.

JUNE—AUGUST.



— 198 —

FLOWERING DOGWOOD.

CORNUS FLORIDA.

MAY.

PLATE 197.

ARIZONA SISYRINCHIUM. SISYRINCHIUM ARIZONICUM. (IRIS FAMILY.)

Smooth and somewhat glaucous, perennial; stem leafy, erect from a cluster of thickened fibrous roots, slender, compressed, winged; root-leaves broadly-linear-lanceolate, prominently many-nerved rather long; stem leaves shorter, the two uppermost forming a spathe subtending the flower; flowers slender-pedicelled, large, bright yellow.



EVERYBODY familiar with the delicate little blue-eyed grass will deem the idea of a yellow-flowered *Sisyrinchium* as very strange. Yet there are two species native in the Southwestern States which have bright lemon-yellow blossoms. *Sisyrinchium Californicum*, a native of moist meadows along the Pacific seaboard, extending from southern Oregon down to San Diego, is one of these. The other is *Sisyrinchium Arizonicum*, a plant of cool springy places in the mountains of the territory from which it takes its name. 'Tis a much larger plant than most of the *Sisyrinchiums*, with wide grass-like glaucous leaves, and showy large flowers. It was discovered at Willow Spring by Dr. Rothrock, flourishing at an elevation of about seven thousand feet. It has since been encountered in other localities in that most interesting region.

In the philosophy which explains the color of flowers, a change of hue—such as this from yellow to blue, as between Western and Eastern species—means response to an insect preferring the new color to the old one. The student of flowers must perforce study insects, whether he likes them or not. A view of Nature to be comprehensive, has to rise above the fences built for convenience sake between her fields.

The genus *Sisyrinchium* is entirely American, most of the species occurring in the tropical parts of North and South America. The blossoms are always delicate and ephemeral. Our common Eastern species *Sisyrinchium Bermudianum*, has been found in a bog in Western Ireland. Apparently it is truly indigenous there, improbable as that may seem. What bird, driven of the wind and tossed, in its plumage, or within its muddy claws, brought the seed from far America?

PLATE 198.

FLOWERING DOGWOOD. CORNUS FLORIDA. (DOGWOOD FAMILY.)

Tree, usually small, sometimes forty feet high, bark grayish-brown; leaves opposite, short-petioled, ovate, acute at both ends, veiny, glaucous beneath; flowers in dense heads surrounded by an involucre of four white, petal-like, obcordate, veiny bracts; corolla small, greenish-yellow, of four petals.

"Dogwood-stars the slopes are studding,
And I see
Blossoms upon the purple-budding
Judas tree.
Aspen-tassels thick are dropping
All about
And the alder-leaves are cropping
Broader out;

Mouse-ear tufts the hawthorn sprinkle,
Edged with rose
The dark bed of periwinkle
Fresher grows.
Up and down are midges dancing
On the grass;
How their gauzy wings are glancing
As they pass.

What does all this haste and hurry
Mean, I pray—
All this out-door flush and flurry
Seen to-day?
This presaging stir and humming
Chirp and cheer,
Mean? it means that Spring is coming:
Spring is here!"

MARGARET JUNKIN PRESTON.



CONVERT the slender creeping stem of the Bunch-berry into a stout tree-trunk, multiply its white-bracted flower cluster by thousands and increase its circle of four leaves into wide spreading unbrage, and you have the Flowering Dogwood. It is among the giants of the forest what the Bunch-berry is to the other low plants that nestle at their feet. Small but sturdy, and showier than all the rest. It is a splendid sight, the Dogwood, in early spring, when its white petal-like flower-leaves cover the almost naked branches and shine glorious amid the tender budding leafage of wood and copse,

"Snow-flakes that blush to be kissed by the sun."

In summer it has a second flowering, this time a wealth of bright red, clustered berries. In autumn it blazes forth in a third glory of color. The leaves have turned scarlet and make the Dogwood resplendent in the bright October woods.

The Dogwood signifies "duration." It is all the more lasting because a slow-grower at first. Thoreau has something to say of this: "I am struck by the fact that the more slowly trees grow at first, the sounder they are at the core, and I think the same is true of human beings."

"The flower that blossoms earliest fades the first," writes Southey. Fast growing trees like the *Ailanthus* soon decay.



— 199 —

PALMERELLA DEBILIS SERRATA.
(LOBELIA FAMILY.)



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PUBESCENT COLUMBINE.
AQUILEGIA PUBESCENS.
JUNE.

PLATE 199.

PALMERELLA DEBILIS SERRATA. (LOBELIA FAMILY.)

Herbaceous, glabrous; stem slender, sparingly branched, erect, leafy; leaves linear-lanceolate, an inch or two long, very narrow, acute at both ends, sharply serrate, the uppermost reduced to narrow bracts; flowers in a terminal one-sided raceme on long slender peduncles; corolla two-lipped, the tube slender, exceeding the calyx.



RE-EMINENT for beauty is the Lobelia Family of plants. The Lobelias themselves are almost always handsome. Some of the tropical species are exceedingly showy and bright-colored. In eastern North America the family is represented by the single genus Lobelia. In the West several other small genera of odd plants are found. The species of Downingia, small, smooth, much-branched plants of California, Oregon and Nevada, with deep blue, yellow-centered flowers are sometimes cultivated. Nemacladus, a tiny spreading herb with milky juice and flesh-colored blossoms, is found in the Sierras of California, in Arizona and in New Mexico, and strays may possibly be found in British Columbia.

Palmerella is a curious and little-known plant of California, a genus of a single species. It was discovered by Dr. Palmer, in the Tantillas Canon, near San Diego, in Southern California. The variety, depicted here, was first found by Dr. Rothrock in Ventura County. Gray named the genus in honor of the first finder.

Palmerella is a rather tall, slender, delicate plant, with narrow leaves and spreading branches. The blossoms are very Lobelia-like in appearance. The tube of the corolla, which splits open with age, is white, woolly-hairy on the inner surface. The limb or border is spreading, deep violet in color. It is altogether a very handsome little plant.

PLATE 200.

PUBESCENT COLUMBINE. AQUILEGIA PUBESCENS. (CROWFOOT FAMILY.)

Stems erect from a stout, branching, scaly root-stock; glabrous near the base, pubescent above; root-leaves long petioled, ternately compound; leaflets three-parted, wedge-shaped, toothed; stem leaves smaller or wanting; sepals linear, acute; petals ending in long spurs.



OW plants have migrated in the ages of the past, how new surroundings have gradually transformed them, and much else of profound interest in the history of our planet, is ascertained when naturalists break new ground.

Aquilegia Pubescens is one of the new plants discovered by the recent government exploring expedition into the Death Valley of California, and published in the elaborate report of the botany of the expedition.

Few regions in the United States have attracted more attention than the Death Valley. The desolation of the sun-baked tract with its soil of hot alkaline sand, covered where it is dry with the characteristic creosote-bush and in moist places with greasewood, can hardly be exaggerated. Yet there has been a great deal of superstition about the Death Valley. The difficulty of obtaining drinkable water in that arid basin, where the soil is so alkaline as to be covered with a white incrustation of salts of soda, is chiefly responsible for the horror expressed in the Valley's name. Yet, dreary waste as it is, the Death Valley and the mountains that circle it have proved very interesting to the botanist; its rigors have produced in plants some remarkable modifications.

Our Rock-columbine of the eastern part of the continent, gives place in the West to many species, some with red flowers, some yellow, some blue, some purple. Aquilegia Pubescens is one of the yellow-flowered species, nearly related to Aquilegia Chrysantha. It was collected by Mr. Coville, in Tulare County, California, in the Sierra Nevada.

PLATE 201.

FLOWERING-FERN. OSMUNDA REGALIS. (FERN FAMILY.)

Fronds smooth, rising from a thick, hard root-stock; lower part sterile, pinnules linear or oblong, serrate, obtusish at apex, rounded or subcordate at base, veins prominent; upper part of frond fertile, pinnules reduced to narrow branches of the rachis, crowded with the cinnamon-brown sori, which are without indusium.

"That tall fern,
So stately, of the queen Osmunda named;
Plant lovelier, in its own retired abode
On Grasmere's beach, than naiad by the side
Of Grecian brook, or Lady of the Mere,
Sole-sitting by the shores of old romance."—WORDSWORTH.



RICHLY does the Flowering-fern deserve the name Regalis, for truly royal is its bearing. Unlike most Ferns, which love the shades of deep woods or dwell in the sheltered crevices of cliffs, the Osmunda grows boldly out in open bogs or meadows, and has no fear of being seen of all. The tall sterile fronds, bright, deep green in color, are in fine contrast with the smaller fertile frond, cinnamon-colored with the clusters of spores that closely cover it. A fern apart is the Osmunda. The fronds are little like those of Maiden-Hair or Lady-Fern—their beauty is their own.

Osmunda Regalis is found almost everywhere in North America, but especially in the northeastern part. It is also very common in Europe and in Asia. Two other species of Osmunda occur in the higher latitudes of North America. Osmunda Cinnamomea, a more common plant even than Osmunda Regalis, is a coarser and less attractive fern. Osmunda Claytoniana is also not uncommon in wide stretches of the Western World.

PLATE 202.

COFFEE-BUSH. STUARTIA PENTAGYNA. (TEA FAMILY.)

Shrub, six feet or more high, bark gray-brown; leaves alternate, petioled, ovate or oblong, acute at both ends, obscurely serrate, pubescent and often yellowish beneath; flowers large, solitary; petals five or six, orbicular or obovate, crisped and dentate on the margin; stamens numerous; fruit a pointed five-angled capsule.



HIGH favorites among cultivated plants are the magnificent Camellias, prized for their elegant foliage as well as for their handsome flowers. The Tea Rose, Camellia Japonica, grows to the size of a large tree in its home in the island empire of Eastern Asia. It is much cultivated in the South, becoming a large shrub that endures the mild winters of that latitude without protection. Two species of Camellia, separated by Linnaeus as a distinct genus under the name of Thea, are among the most invaluable plants cultivated by man. These are Camellia (Thea) Viridis and Camellia Bohea, from whose varieties all the tea of commerce that is not manufactured from hay, is obtained.

Our nearest native ally of this beautiful genus is Stuartia, of which there are two species in the Southern States. One, Stuartia Virginica, inhabits the low country along the coast from Virginia southward. The other, Stuartia Pentagyna, is found in the Cumberland and Alleghany mountains, along the banks of streams from Kentucky to Georgia. It is a tall shrub, or perhaps, sometimes, a small tree. The foliage is not unlike that of Camellia Japonica, though of a much lighter green. The flowers are beautiful. The petals, five or six in number, are pure white within, but greenish or purplish and silky-haired without. The filaments of the stamens are usually dark purple.



— 201 —

FLOWERING-FERN.

OSMUNDA REGALIS.

JUNE.



— 202 —

COFFEE BUSH.

STUARTIA PENTAGYNA.

JUNE.

PLATE 203.

YELLOW MILKWORT. *POLYGALA LUTEA*. (MILKWORT FAMILY.)

Stems smooth, erect, branching from the base, leafy; root-leaves obovate, the stem leaves smaller, lanceolate or spatulate, acute at both ends, veins, except the mid-nerve, not prominent; flowers in dense oblong spikes at the naked summits of the stems, bright orange in color.



HEREVER we find bright color lavished on a flower, we may safely conclude that it is for the purpose of alluring insects for fertilization. Plants which are wind-fertilized, that is, which produce an abundance of pollen which is simply blown by the wind to the stigmas of other flowers, rarely or never have highly colored blossoms. That is the case with the pines and cedars, the willows and poplars, the grasses and sedges. Bright red or orange-yellow in a flower is almost always an invitation signal to the eyes of insects that fly by day. The Butterfly-weed is a good example. How well the bait succeeds may be noticed on any bright summer day, when the gay orange clusters are covered with a hungry swarm of insects great and small. In the case of the Cardinal-flower, it is the humming-bird for which mine host the plant hangs out his blood-red sign. Moreover, these vivid colors are almost always conjoined with some irregularity or added intricacy in the plan of the flower—making it the counterpart of the form of its winged minister. This is true in Cardinal-flower and Butterfly-weed. It is also illustrated in the Yellow Milkwort, whose oddly fashioned blossoms flaunt almost as vivid an orange as that displayed by the Butterfly-weed.

PLATE 204.

EPILOBIUM RIGIDUM. (EVENING-PRIMROSE FAMILY.)

Smooth or nearly so, stems simple, erect, only a few inches high, from a slender root-stock; leaves on very short winged petioles, lower opposite, upper sub-alternate, from narrowly spatulate to obovate glaucous; flowers large, axillary to the bract-like upper leaves, slender peduncled; ovary covered with a fine white glandular pubescence; stigma large.



EPILOBIUM Rigidum is one of the many species of the West. It grows in the Coast range in Oregon and strays North. It is a handsome plant, not tall, but upright and strict in its growth. The flowers are large and showy, of a rich rose purple color. While usually nearly smooth, there is a variety which has the stem and leaves covered with a dense, white pubescence. The capsule in which the seeds are contained is club-shaped. As in all other Epilobiums, it is four-celled. When the fruit is mature, the four valves split apart, usually curling up and allowing the seeds to escape. The capsule in this condition is very pretty.

With the exception of the Fire-weed, the native Epilobiums of eastern North America are not very showy plants. One European species, the Great Willow Herb, *Epilobium Hirsutum*, is naturalized in the Northeastern States and in Ontario. It is a handsome plant, with large purple blossoms. In England it goes by the odd name of "Codlins-and-Cream." Strangely enough, there are a great many Epilobiums in New Zealand. While the small flowered Epilobiums fertilize themselves, the species with large showy flowers that readily attract insects shed the pollen before the stigma of the same flower is ready to receive it, making cross-fertilization a necessity—with all the gain of strength where breeding in-and-in is avoided.



— 203 —

YELLOW MILKWORT.

POLYGALA LUTEA.

JUNE.



— 204 —

EPILOBIUM RIGIDUM.

(EVENING-PRIMROSE FAMILY.)

JULY.

BROAD LEAVED FIREWEED. *EPILOBIUM LATIFOLIUM*. (EVENING-PRIMROSE FAMILY.)

Stem erect from a thick woody root-stock, much branched, smooth, at least at base, very leafy; leaves mostly opposite, ovate-lanceolate to linear-lanceolate, very obscurely toothed, nearly sessile, glaucous; flowers axillary on long slender peduncles, forming a terminal, leafy raceme; petals large, narrowly obovate; pod rather short, curved; seeds very small, with dirty white coma or hairs.



THE genus *Epilobium* is a very large one, especially in the temperate zones. It is chiefly in mountainous regions that the species are found. They are much alike, for the most part, and it is one of the difficulties of plant classification to distinguish the different forms. They appear to grade into each other. Some closely allied species are thought to hybridize, but that suspicion is always difficult to prove. Most of the *Epilobiums* are handsome plants. Some are very showy, with large flowers. These are usually white, pink or violet in color. The seeds are very interesting and afford valuable characters for classification. They are very small, brown in color, and are often covered with tiny projections like the papillæ of the tongue. They are furnished with a tuft of hairs or "coma," which is an outgrowth from the seed-coat. These hairs are white, tawny, or cinnamon-colored. By means of them the seed is carried a long distance by the wind—that chief of sowers.

Like many plants of high northern latitudes, *Epilobium Latifolium* is widely distributed in the northern hemisphere. It occurs in Arctic America, Europe and Asia. In North America it extends southward to Colorado.

WILD MOCK-ORANGE. *PHILADELPHUS INODORUS*. (SAXIFRAGE FAMILY.)

A tall shrub with straggling, branching gray-barked stems; leaves opposite, short-petioled, broadly ovate, acuminate at apex, coarsely dentate, smooth or pubescent beneath, prominently three-veined; flowers large in cymes at the ends of the twigs; petals obovate, white, much longer than the acute calyx-lobes.



ANY a good man and woman bears a grudge against parents otherwise beloved. Why did father, or mother, on the fateful day of baptism, give to an innocent victim such a name as Adlia or Aminadab, Jemima or Mehetabel? In naming places as well as children there is the same plentiful lack of fitness or originality. Great are the responsibilities of a christener; seldom does he heed them! As with men and women, villages and cities, so with plants.

It is a pity that the beautiful Mock-orange, so fair and fragrant in itself and with so decided an individuality, if one may so express it, should be called Mock-orange. The superb white, golden-hearted blossoms are different enough from those of the Orange to make it worthy of a name of its own. Yet it has come to signify "Counterfeit" because of this mythical resemblance. Its other popular name, *Syringa*, belongs of right to the *Lilacs*.

There are several very beautiful species of *Philadelphus* in North America, although none of them are quite the peers of the Mock-orange, *Philadelphus Coronarius*, which is originally of Southern Europe. *Philadelphus Inodorus* is very similar in leaf and flower, but lacks perfume. It is a tall shrub with slender, gracefully curved branches. Usually quite smooth, it is sometimes more or less hairy. It dwells by the banks of streams in the mountains of the Southern States, from Virginia to Alabama. The large, pure white blossoms open in May. The southern mountain region is the very paradise of handsome flowering shrubs.

A smaller species, *Philadelphus Hirsutus*, is found on cliffs along the rivers of the Southern States. A handsome western species is *Philadelphus Lewisii*.



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BROAD-LEAVED FIREWEED.

EPIOBIMUM LATIFOLIUM.

AUGUST.



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WILD MOCK-ORANGE.

PHILADELPHUS INODORUS.

PLATE 207.

OENOTHERA XYLOCARPA. (EVENING-PRIMROSE FAMILY.)

Perennial, from a deep thickened root, acaulescent; leaves on long petioles, pinnatifid, with the broadly ovate, heart-shaped terminal lobe much the largest, pubescent; flowers axillary, sessile; calyx with a slender, hirsute tube; petals large, obversely heart-shaped; capsule tapering from base to apex, four-winged, sessile.



OENOTHERA is almost entirely an American genus. Only a single species, a native of Tasmania, is indigenous outside of North and South America, though several are introduced into Europe. It is in the parts of North America, beyond the tropics, that the genus is at its best. On the grassy prairies and arid regions of the Western States and Canada there are a great many species. Most of them have large yellow flowers. Some few are pink flowered, others white. Oenothera Rosea, a handsome species of the Southwest, has showy, rose-purple blossoms. In the allied genera, Godetia and Boissduvalia, now usually considered as sections of Oenothera, the flowers are rose-colored or lilac. Most of the species that have white or yellow flowers turn reddish in withering. These plants are very diverse in habit. Some are erect and strict. Others branch widely. A great many of the prairie and desert species are almost stemless, with the leaves in rosettes on the ground and the flowers on naked stalks. Such is the mode of growth of Oenothera Xylocarpa, a species recently discovered in the Death Valley in California. As is stated in the report of the expedition, "The plant grew in the well-drained granitic soil that surrounds the meadows." Because plants usually flourish best on a special kind of soil they hint to the geologist and the miner what kind of rocks they are likely to find beneath.

PLATE 208.

STORKSBILL. ERODIUM CICUTARIUM. (GERANIUM FAMILY.)

Annual; stem slender, much branched, pubescent; leaves alternate, pinnately dissected, primary segments rather remote, hairy; flowers small, in umbel like clusters on long, spreading axillary peduncles; petals five in number, small; carpels five, beaked with the long styles which roll back from the axis and become twisted with age.



ERODIUM Cicutarium is a plant of the northern part of the northern hemisphere, circling the globe. It is common in Europe and Asia. In eastern North America it is known only where it has been introduced from Europe, but in the northwestern part of the continent it is undoubtedly native.

The Storksbill is a low plant, covered all over with soft hairs which are usually more or less viscid. When very young the stems are erect, but soon incline to spread out and form tufts. The flowers are small, and of a pale pink or purple color. They grow in a cluster, usually of three or four, but sometimes as many as twelve. The fruit is the most strikingly characteristic part of the plant. It consists of five carpels, each tipped with a long rigid style. These, attached in a ring about a central axis, form the fancied "stork's bill." When ripe, however, the illusion is rudely dispelled, for the styles curl up, leaving the axis exposed.

Erodium is from the Greek name for the heron, doubtless in allusion to the beak-like fruit. The genus is closely allied to Geranium.



— 207 —
 CENOTHERA XYLOCARPA.
 (EVENING-PRIMROSE FAMILY.)



— 208 —
 STORKSBILL.
 ERODIUM CICUTARIUM.



— 209 —

WRIGHT'S CROWNBEARD.

VERBESINA WRIGHTII.

JULY.



— 210 —

RETICULATES CLEMATIS.

CLEMATIS RETICULATA.

JULY.

PLATE 209.

WRIGHT'S CROWNBEARD. VERBESINA WRIGHTII. (SUNFLOWER FAMILY.)

Stem erect, leafy, not winged, sparingly branched, rough, hairy; leaves opposite, sessile, ovate or oblong, rather sharply serrate, thick, prominently veined, scabrous; heads terminating long almost naked peduncles; involucre much imbricated; bracts oblong; rays numerous, oblong-ovate, much exceeding the disk.



ONE of the earliest of the many collectors who have labored to bring to knowledge the rich flora of the Southwest, was Charles Wright. In 1849 he accompanied an expedition of United States troops sent out from San Antonio, Texas, to El Paso, New Mexico. In this interesting region, then little known and only recently annexed to the United States, Mr. Wright made large collections of botanical specimens, which were named by Dr. Gray and published under the title of "Plantæ Wrightianæ." There were a great many species described for the first time, and some genera new to science. Wright afterwards made extensive and valuable collections in Cuba. A great deal of our knowledge of the flora of that island is due to him.

Wright also collected largely in Texas, bringing to light many interesting plants of that region. Among these was a Crownbeard, *Verbesina Wrightii*, one of the many plants which bear the name of that "Prince of collectors" as Gray calls him. It was discovered in the mountains near Austin, Texas, and was first described as an *Actinomeris*. It has strayed northward. It is a showy plant, the stems growing in clusters from a deep root. The leaves of the main stem are opposite, those of the branches alternate. The heads are large, with bright yellow rays a full inch in length.

PLATE 210.

RETICULATED CLEMATIS. CLEMATIS RETICULATA. (CROWFOOT FAMILY.)

Stem herbaceous or slightly woody, much branched, climbing, smooth; leaves opposite, pinnate; leaflets seven to nine, petioled, elliptical, oblong-ovate or ovate-lanceolate, acute, strongly reticulate-veined, smooth, thick; flowers on long axillary peduncles; petals none; sepals four, thickish; achenes with long plumose tails.



FEW groups of plants present more variety in leaf and blossom than is exhibited by the species of *Clematis*. The Virgin's Bower and the Leather Flower seem quite dissimilar, while the rare and beautiful *Clematis Verticillaris* is very different from either. Some are erect plants, others high-climbers. Some have white fragrant blossoms in clusters, others solitary long-stalked flowers, in form not unlike a pipe with its stem. Others have huge open flowers of a rich purple color.

Clematis Reticulata has flowers solitary on axillary stalks, much like those of the familiar Leather Flower, *Clematis Viorna*, which is sometimes known by the name of Dutchman's Pipe. That title belongs properly to *Aristolochia Siphon*. The color of the blossoms of *Clematis Reticulata* is a dull greenish purple. The chief particular in which this species differs from *Clematis Viorna* is in the veins of the leaf, which are very prominent and form a net-work, hence the specific name.

The Reticulated Clematis inhabits the Southern States, growing from South Carolina to Florida and westward, straying north. It prefers dry open ground in the pine-barrens. The period of flowering begins in May and lasts until July.

The name Clematis was given by the classic herbalist, Dioscorides, to some unknown climbing plant, and was appropriated by Linnæus to the present genus.



— 211 —

GREAT LAUREL.

RHODODENDRON MAXIMUM.

JULY.



— 212 —

WAX WORK, CLIMBING BITTERSWEET.

CELASTRUS SCANDENS

JUNE.

PLATE 211.

GREAT LAUREL. RHODODENDRON MAXIMUM. (HEATH FAMILY.)

Shrub or small tree, often thirty feet high, much branched; leaves alternate on rather stout petioles, obovate, oblong, pointed, thick, evergreen; flowers in dense umbellate clusters from large, scaly terminal buds; corolla large, between bell-shaped and rotate, irregular, five-lobed; stamens ten, on the corolla; capsule woody, five-celled.



ONE of the most gloriously beautiful of American shrubs is the Great Laurel, *Rhododendron Maximum*—a full cousin to the rain-bowed Azaleas. Handsome as is the American Laurel, it cannot compare with the Great Laurel in size or in magnificence of flowers. *Rhododendron Maximum* often becomes a tree, sometimes reaching the height of thirty-five feet. The trunk, usually twisted and straggling, is yet often stout and straight. The leaves are larger and of a less glossy green than those of the *Kalmia Latifolia*. The flowers are individually larger, and occur in clusters of much greater size. A more superb object than a well-grown *Rhododendron Maximum* in full blossom, is not to be met with in our forests. The color of the flowers is pale pink to almost pure white, with spots of yellowish-green on the corolla. Royally beautiful are the great masses of these blossoms, with a good background in the sombre green of the foliage.

The Great Laurel occurs frequently in Western New York and Ontario, and very sparingly in Southern New England. It is very common in the mountain region from Pennsylvania southward. It grows along all the water-courses, often forming almost impassable thickets. It is in its prime of flowering in June:

'When brooks send up a cheerful tune,
And groves a joyous sound.'

PLATE 212.

WAX-WORK, CLIMBING BITTERSWEET. CELASTRUS SCANDENS. (STAFF-TREE FAMILY.)

Woody climber; stems slender, leafy, branched; leaves alternate on slender petioles, ovate, pointed at apex, acute at base, serrate; flowers in bracted compound racemes at the ends of the young branches; calyx bearing a concave disk, to which the petals and stamens are attached.

"In human works, though labor'd on with pain,
A thousand movements scarce one purpose gain;
In God's, one single can its end produce;
Yet serves to second, too, some other use."—POPE.



SOME plants, as Thoreau expresses it, flower in fruiting. They produce small blossoms, of no particular interest or charm, reserving their store of pigments for the adornment of their fruit in Autumn. They seem to find it less essential to have gayly-painted blossoms to attract insects, than to bear bright-hued fruit to catch the eyes of birds. Beauty ever masks duty in the pageantry of Nature, and the brilliant dyes of fruits are but so many invitations to the fowls of the air, thus unknowingly enlisted for the transport of seeds a hundred, maybe a thousand miles from home.

No group of plants are better endowed in respect to fruit-color than the small Staff-tree Family. There is no more vivid array of hues in our Autumn woods than that donned by the species of *Euonymus* or Burning Bush. Not to mention the crimson-red of the leaves, what brighter tints are found in Nature than the red-purple of the pods, that bursting, disclose the seeds with their scarlet arils?

Scarcely less gay are the colors of the Wax-work. In the fall the climbing stems are loaded with orange-yellow pods, each containing from three to six scarlet seeds. *Celastrus Scandens* blossoms in May. The flowers are greenish in color, not showy, but disposed in graceful grape-like clusters. The Wax-work or Climbing Bittersweet is common in Eastern North America, usually growing in thickets along streams.



— 213 —

COMMON HEAL-ALL.

BRUNELLA VULGARIS.

JUNE—SEPT.



— 214 —

SNAKE-MOUTH POGONIA.

POGONIA OPHIOGLOSSOIDES.

MAY—JULY.

PLATE 213.

COMMON HEAL-ALL. BRUNELLA VULGARIS. (MINT FAMILY.)

Stem smooth or pubescent, four-angled, erect or decumbent; leaves opposite, long-petioled, rhombic-ovate or oblong, obscurely serrate; flowers in dense cylindrical axillary or terminal spikes, each three subtended by a rounded membranaceous bract; calyx five-toothed, somewhat two-lipped; corolla nearly twice as long, curved, two-lipped.



It is often a difficult matter to determine whether a plant is truly indigenous to a country, or whether it has been introduced through the hand of man. In the case of North American plants that are also natives of Europe, the problem is sometimes exceedingly complicated, for the opportunities for the importation of European weeds into this country have been unusually good, and the spread of such weeds, when introduced, uncommonly rapid. As a general thing, if a European plant is found in Eastern North America, and not in the western part of the continent, nor in Asia, it may be doubted that it is native here. But if it ranges up into the northwest, and inhabits northern Asia, the chances are that it is truly indigenous. So it seems to be pretty certain that *Brunella Vulgaris* is native in North America. It is found in temperate regions almost everywhere.

In North America the *Brunella* is met with in meadows, open woods, and at roadsides, throughout the continent, north of Mexico. It begins to flower in June, and continues up to frost. It is not a showy plant, usually growing modestly close to the ground. The leaves, stem and bracts of the spike are often purplish. The flowers are blue or white, rarely pink.

PLATE 214.

SNAKE-MOUTH POGONIA. POGONIA OPHIOGLOSSOIDES. (ORCHIS FAMILY).

Whole plant quite smooth; roots fibrous, thickened, clustered; stem erect, simple, six to eighteen inches high; leaves two, clasping, one near the middle of the stem, ovate, the other near the summit, bractlike; flowers large, nodding; sepals and petals alike, lanceolate; lip bearded.



ONE of the handsomest of our many beautiful orchids is *Pogonia Ophioglossoides*. A plant of meadows and bogs, it is often found with its pretty relative, *Arethusa*, but flowers a week or two later. It has a wider range than has *Arethusa*, extending along the Atlantic Coast down as far as Florida, and reaching westward along the Great Lakes to Minnesota and Manitoba. The oddest thing about its geographical distribution is its occurrence in Japan.

Many genera that are represented in Eastern North America by a single species, have a sister representative in eastern Asia. But there are not many identical species found in these two localities and nowhere else. This similarity in the flora of these widely separated regions, is one of the most interesting and most discussed problems of geographical distribution.

Pogonia Ophioglossoides is a handsome plant, or rather a handsome flower. The leaves are not conspicuous. It is the blossom nodding at the summit of the stalk that attracts our attention. Usually the flower is solitary, but sometimes there are two or even three on a stem. The color is a pale pink. Albinos sometimes occur. The blossom has a peculiar fragrance, not agreeable to most people. Thoreau disliked the plant on account of its odor.



— 215 —

SHOWY DUTCHMAN'S BREECHES.

DICENTRA EXIMIA.

MAY—AUGUST.



— 216 —

GROUND NUT.

APIOS (TUBEROSA)

JULY.

PLATE 215.

SHOWY DUTCHMAN'S BREECHES. *DICENTRA EXIMIA*. (FUMITORY FAMILY.)

Scape and leaves from a scaly, short root-stock; leaves on long petioles, much dissected, ultimate segments linear, glaucous, especially beneath; flowers in a long peduncled compound raceme, irregular, rather large; petals four, the two outer with a very short blunt spur or sac at base.



SOME orders of plants there are that seem to have no members that are not beautiful. Others are entirely insignificant. The Saxifrage Family, for instance, is noted for the handsome plants that it includes. No plants that can justly be termed ugly belong to it. While, on the other hand, almost all the plants belonging to the Pig-weed and Goose-foot families are unbeautiful and weed-like. In the Fumitory Family, beauty is the rule. The common Fumitory itself, a native of the Old World but largely naturalized with us, is a handsome plant. The species of *Corydalis*, with their delicately dissected leaves and one-spurred yellow flowers, are very pretty. The dainty Alleghany Vine, *Adlumia*, of the Appalachian region, graceful in its leafage and with small, fragile-looking flowers, is among the fairest of our native plants. Then there are the Dutchman's Breeches and the Squirrel Corn among our early spring wild flowers.

Another species of *Dicentra* is the superb *Dicentra Eximia*, of the Appalachian region. This species occurs sparingly in New York and Ontario, but is common in the mountains of Virginia, the Carolinas and Tennessee, flowering from early in the spring until late in the summer. The foliage is coarser than that of our other species, but the rose-purple flowers in graceful drooping clusters, are very handsome.

PLATE 216.

GROUND-NUT. *APIOS* (TUBEROSA). (PEA FAMILY.)

Stem slender, much branched, climbing or reclining, underground branches bearing small round tubers; leaves alternate, petioled, pinnate, leaflets usually five or seven, ovate or ovate-lanceolate, acute at apex, rounded at base; flowers in close, rather short-peduncled, axillary racemes.

"Where the ground-nut trails its vine"



IS one of the valuable pieces of information possessed by Whittier's "Barefoot Boy." More learned than some of his fellows is he, for not every country lad knows where to seek the little round nut-like tubers that every urchin loves when found. Where shall we look for them?

Growing usually in low grounds along brooks, climbing over fences and bushes and weighting them down with tangled masses of leaves and flowers, we may usually encounter the *Apios*. It is wide-spread in Eastern North America, extending westward as far as Manitoba, Minnesota and Louisiana, and southward to Florida. The foliage is very handsome, a dark rich green in color, not unlike that of the *Wistaria*. The dense clusters of flowers appear in late summer. They are of a peculiar shade, intermediate between chocolate-brown and violet-purple. They have a faint, grateful perfume that has been likened to that of Violets, but the resemblance is not striking. The tubers are often pear-shaped, hence the name *Apios*, which is the Greek word for the pear.

According to Kalm, a Swedish botanist, who traveled in North America in the earlier part of the last century, and who sent many of our plants to Linnæus, the Indians knew the Ground-nut as "Hopniss."

PLATE 217.

POGONIA TRIANTHOPHORA (PENDULA). (ORCHIS FAMILY.)

Stem low, not exceeding eight or nine inches in height, smooth, rather succulent, leafy, rising from an oblong tuber; leaves alternate, broadly ovate, sessile and clasping, often purplish; flowers on short pedicels from the axils of the upper leaves; lip three-lobed, wavy.



MONG the

"Flow'rets of the hills,"

we may number the fair little orchid, *Pogonia Pendula*, one of the shyest and most difficult to find, yet one of the most daintily graceful, of those almost always rare plants. A plant of upland woods, it may be met with during the latter part of summer, throughout Eastern North America. It grows in Eastern Canada and New England, and from there to Florida and Wisconsin. Rare almost everywhere, it is much more so east than west of the Alleghanies. The love of seclusion manifested by such plants

as this may have been in the mind of Sidney Lanier, when he wrote:

"Beautiful glooms, soft dusks in the noon day fire,
Wildwood privacies, closets of lone desire,
Chamber from chamber parted with wavering arras of leaves,

Cells of the passionate pleasure of prayer to the soul that grieves,
Pure with a sense of the passing of saints through the wood,
Cool for the dutiful weighing of ill with good."

While our other *Pogonia* have usually but a single large flower at the summit of the stem, the *pendula* generally has two, three or even four blossoms, nodding prettily on their short stalks. These are small, and are apt to escape notice, for the stems are short and usually nestle beneath the shade of other plants. But when we stoop to examine them, what a wealth of loveliness is revealed! The quaint pretty form of the blossom is not less attractive than the color, which is a delicate rose, or rather lavender. The hanging lip is daintily crisped, like some tiny seashell. The stem arises from a peculiar white tuber, like a little potato. The quaint fruit has earned it the fanciful name of "Three-Birds" in some localities.

PLATE 218.

BITTER-SWEET. SOLANUM DULCAMARA. (NIGHTSHADE FAMILY.)

Perennial; lower part of stem woody, upper part flexuose, climbing; leaves more or less pubescent, ovate in outline, obtuse or acutish at apex, cordate, hastate, or with two to four smaller leaflets at base, long petioled; flowers in open cymes; corolla rotate, five-lobed; fruit a two-celled red berry.



NE of the many

"Petted flowers that the Old World gave the New,"

as Bryant puts it, is *Solanum Dulcamara*. At least, the Bitter-sweet if petted once, now no longer needs to be. Much cultivated in gardens many years ago, and even yet occasionally met with about country houses, it is well established as a weed of roadsides and waste ground. It is never a troublesome weed, and for its real beauty we should welcome it rather than regard it as an intruder. A somewhat woody climber, it prefers to mount low walls and undergrowth. The Bitter-sweet is unambitious and rarely ascends to any great height. The bright green foliage, the purple, yellow-stamened flowers in open clusters, and the scarlet berries form a brilliant array of color that comes and goes from early summer until frost. The fruit is popularly supposed to be poisonous. Very likely it is not entirely harmless—few of the Nightshade Family are—but it is surely not as dangerous as it is said to be.

Thoreau describes the berries: "The *Solanum Dulcamara* berries are another kind which grow in drooping clusters. I do not know any clusters more graceful and beautiful than these drooping cymes of scarlet or translucent, cherry-colored, elliptical berries with steel-blue or lead-colored purple pedicels."



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POGONIA TRIANTHOPHORA.
(PENDULA)



— 218 —

BITTER-SWEET.
SOLANUM DULCAMARA.
JUNE—SEPT.

PLATE 219.

GALAX-LEAVED SHORTIA. *SHORTIA GALACIFOLIA*. (DIAPENSIA FAMILY.)

Suffrutescent, acaulescent; root-stock slender, creeping; leaves long-petioled, broadly ovate-oblong or almost orbicular, base rounded or heartshaped, apex truncate, coarsely dentate, thick, veiny; flowers on long peduncles, rather large; corolla white, five-cleft almost to the base, lobes dentate; style long, exserted.



URING the latter part of the eighteenth century, André Michaux, a French traveler and naturalist, was sent by the French government to America to collect shrubs and trees for botanical gardens in France. He remained in this country many years, making long collecting trips every year. He established several botanical gardens, one at Philadelphia, another near New York, a third at Charleston, South Carolina. Here he kept the plants collected on his journeys until he could send them to Europe. He made frequent excursions into the mountains of the Southern States. Many plants of that interesting region were first named and described by him. While collecting near the headwaters of the Savannah River, in northwestern South Carolina, he found a curious little shrubby plant which he believed to belong to the Heath Family. This he mentions in his journal.

When Gray visited Paris he had an opportunity to examine Michaux's herbarium. Here he found this odd plant, a fruiting specimen without name. He described it as a new genus, dedicating it to Dr. Short of Louisville. Afterwards another species was discovered in Japan. Then the original species was rediscovered in the mountains of North Carolina. Recently the district where Michaux probably first found the plant was explored, and great quantities of *Shortia* were found in the valley of the Whitewater, in Oconee County, South Carolina.

PLATE 220.

UMBELLED SPRING-BEAUTY. *CLAYTONIA UMBELLATA*. (PORTULACA FAMILY.)

Plant low, herbaceous; stems weak, rising from a round corm root; leaves on long weak petioles, cauline two, opposite, short-petioled, fleshy, obovate-spatulate or almost orbicular, obtuse at apex; flowers few in a sessile umbel between the two stem-leaves; sepals rounded; petals little longer, pale pink.

"What are these, you ask? these delicate things
With petals as airy as fancy's wings,
And daintily pink as a maiden's cheek
When she thinks of the love she cannot speak.
Why, these—I'll whisper a secret to you.

Nature is dreaming of flowers. It's true.
These are her dreams, when she awakens and shows
Her marvelous lily, her perfect rose,
Do you think such thrills to our hearts they'll bring
As these little dream-flowers found in Spring?"



UR two pretty little *Claytonias* of Eastern North America, the narrow-leaved *Virginica* and the broader-leaved *Caroliniana*, are among the best-known and most beloved of our wild-flowers. Everyone is familiar with them, and loves to meet them in the spring woods. In the West, especially along the Pacific Coast, there are quite a number of species of this genus, American with the exception of a few species in Northwestern Asia and possibly one in Australia.

Claytonia Umbellata is a native of the Sierras of western Nevada. It is a low plant, delicate and tender. The weak stems bear a single pair of leaves, from between which the stalks that bear the pale pink blossoms arise. It is otherwise not unlike the

Claytonia Caroliniana. Strays of these beauties will be found in unexpected places.



— 219 —

GALAX-LEAVED SHORTIA.

SHORTIA GALACIFOLIA.

JUNE.



— 220 —

UMBELLED SPRING BEAUTY.

CLAYTONIA UMBELLATA.

MAY

PLATE 221.

BONESET, AGUE-WEED. EUPATORIUM PERFOLIATUM. (SUNFLOWER FAMILY.)

Stem stout, erect, downy-pubescent, rather tall; leaves opposite with connate bases, ovate-lanceolate, serrate, green above, whitish and downy on the under surface; heads numerous in terminal, compound corymbs; involucre of few, linear bracts; flowers all tubular, white; pappus of white bristles.



All the flowers that deck the meadows when the year is just entering "the sere and yellow leaf," none are better known to country people than the Boneset. It is a conspicuous plant, coarse and rank in its growth. The tall, stout stem, well provided with leaves, bearing aloft the great cluster of white-flowered heads, form a whole that is sure to attract attention. The leaves are opposite on the stem, and their bases have united so that the stalk seems to pass through a single leaf. On this account our plant is sometimes called "Thoroughwort." The flowers are great favorites with insects in the bright, late summer days, when sweeter Honey-cups are faded.

The leaves are sprinkled with tiny glands containing an acrid resin. When held to the light, these glands appear as minute points of light, thickly scattered over the surface. It is in this oil or resin that the supposed medicinal virtues of the plant are contained. The Boneset, as its name betokens, was once a much esteemed member of the rural pharmacopœia. With the Boneset but flowering a few days later as a rule, its haughtier cousin, Eupatorium Purpureum, flaunts its huge pink clusters. It is a plant worthy of a more aristocratic name than that it bears—"Joe-Pye Weed."

PLATE 222.

YELLOW VIOLET. VIOLA PUBESCENS. (VIOLET FAMILY.)

Stem erect, simple, sometimes a foot or more high, pubescent; leaves round-ovate, deeply heart-shaped, obtuse or pointed at apex, dentate, soft-pubescent, the lower on long petioles, the uppermost almost sessile; stipules rather large; flowers few on slender axillary pedicels; bright yellow.

"When beechen buds begin to swell,
And woods the blue-bird's warble know,
The yellow violet's modest bell
Peeps from the last year's leaves below.

Ere russet fields their green resume,
Sweet flower, I love, in forest bare,
To meet thee, when thy faint perfume
Alone is in the virgin air.

Of all her train, the hands of spring
First plant thee in the watery mould,
And I have seen thee blossoming
Beside the snow-bank's edges cold."—BRYANT.



R. BURROUGHS criticises this poem because of the inaccuracy of some of its statements. The yellow violet has little if any perfume. It blossoms in April in the South, but further northward in May, long after the last "snow-bank" has disappeared.

"There is a great diversity in the
Tints that spot the violet's petal."

Every shade of blue, white, yellow, purple, and even rose is met with in the handsome flowers of this genus. Though not as common as the blue and the white, yellow violets are by no means rare. There are three or four varieties of them in Eastern North America, and several more in the West. Viola Pubescens is the best known of these. It is a common plant in Eastern North America, readily distinguished from the related Viola Scabriuscula by its being more hairy and of not so bright a green.



— 221 —

BONESET, AGUE-WEED.

EUPATORIUM PERFOLIATUM.

JULY—AUGUST.



— 222 —

YELLOW VIOLET.

VIOLA PUBESCENS.

MAY.

PLATE 223.

GOLDEN HYPERICUM. HYPERICUM AUREUM. (ST. JOHN'S WORT FAMILY.)

Shrub one or two feet high, stems widely branched, leafy, bark grayish, shreddy; leaves opposite, short-petioled, oblong or oblong-ovate, mucronate, smooth, glaucous beneath, punctate; flowers large solitary or in cymes; petals broadly obovate; stamens numerous; capsule ovate, partly three-celled, tipped with the persistent styles.



THE common Hypericum Perforatum of Europe, thoroughly naturalized in Eastern North America, has been known in England from time immemorial as St. John's Wort, and is regarded as of supernatural potency. A time-honored legend, once universal, still obtains in some of the rural districts of Great Britain in regard to the eve of St. John. The notion is that if one watch by the door of the parish church at midnight of that vigil, the ghosts of those in the parish who are to die during the following year will be seen to enter the church, each bearing his coffin. The harmless and commonplace-looking weed of the fields known as St. John's Wort, was once believed to aid this gruesome power of vision.

We have many species of Hypericum in this country, many more than are natives of the Old World. All are tidy plants, some are strikingly handsome. Perhaps the most beautiful of the genus is Hypericum Aureum, a native of glades and river-banks in the Southern States, from Tennessee to Georgia and Alabama, and ranging northward. It is a straggling shrub, with leaves of a fine green and large golden-yellow flowers. The numerous stamens give a dainty look to these blossoms.

PLATE 224.

BUTTERFLY-PEA. CLITORIA MARIANA. (PEA FAMILY.)

Stems slender, smooth, decumbent, ascending, erect or twining; leaves alternate, long-petioled, pinnately trifoliate, with small lanceolate, stipules; leaflets oblong or ovate-lanceolate, mucronate, veiny, pale beneath; flowers large, on axillary peduncles; calyx tubular-campanulate, five-toothed; standard large, erect.



FREQUENTLY it has been noted that in the New World the vegetation of the tropics extends much further northward than in the Old. This has been demonstrated in regard to the grasses, and is equally true of other plants. The cause, doubtless is that summer in this country has heats unknown in parallel belts of Europe.

The Butterfly Pea belongs to a group of plants of the Pea Family that are nearly all confined to tropical or subtropical regions. Yet it is found in America as far to the North as southwestern New York, and straying further North, returns thence to Florida and Texas.

It is a beautiful plant, as exquisitely graceful as it is showy. In very poor soil it sometimes grows upright, but usually trails along the ground or reclines on low undergrowth. The foliage is of a bright refreshing green, a singularly happy shade for setting off the blossoms to the greatest advantage. These are very large, of a rich lilac tint, relieved by touches of deeper purple. As they stand erect on their stalks, they suggest vividly some large tropical butterfly with folded wings, resting for a moment ere it begins again its busy quest for nectar. The large standard is a good imitation of the folded wings, while the keel answers well to the body.

The flowers open in June, when Trumpet-vine and Wild-rose and Elder make of each homely field and fence-row, a paradise of beauty.



— 223 —

GOLDEN HYPERICUM.

HYPERICUM AUREUM.

JULY—AUGUST.



— 224 —

BUTTERFLY-PEA.

CLITORIA MARIANA.



— 225 —

LEAD PLANT.
AMORPHA FRUTICOSA.



— 226 —

FALSE DRAGON-HEAD.
PHYSOSTEGIA VIRGINIANA.

PLATE 225.

LEAD PLANT. AMORPHA FRUTICOSA. (PEA FAMILY.)

Shrubby, stems becoming herbaceous towards the summit, much branched, smooth or sparingly pubescent; leaves alternate, odd-pinnate; leaflets numerous on short petiolules, oblong, mucronate pubescent especially on the veins beneath; flowers small in long panicled racemes; calyx five-toothed; petals wanting except the standard, which encloses stamens and style.



MORPHA is very peculiar among our genera of the Pea Family. The showy flowers—fancifully termed butterfly-shaped by the old botanists, which distinguished most of the members of this great order, are replaced in the Lead Plants by small blossoms, inconspicuous when taken separately, though quite showy as they grow in tassel-like clusters. These are dark-purple or rose-color, the exerted golden-yellow stamens making a pretty contrast of color. The corolla consists of but a single petal, the “standard,” which is wrapped about the stamens. The “wings” and the “keel,” which go to make up the perfect flower of the Pea Family, have quite disappeared. Hence the name “Amorpha” which means “deformed.”

Amorpha Fruticosa is the most common species in Eastern North America. It grows in Pennsylvania, straying northward and from there southward to the Gulf of Mexico, but is much more common west of the Appalachian region, extending across the plains to the Rocky Mountains. It is usually met with in bottom-lands along streams, often attaining quite considerable size. It was called the Lead Plant because it was supposed to indicate the presence of lead in the soil. If so, there is lead almost everywhere, perhaps in minute quantities, along the banks of our Western and Southern rivers.

PLATE 226.

FALSE DRAGON-HEAD. PHYSOSTEGIA VIRGINIANA. (MINT FAMILY.)

Stem smooth, erect from a short, perennial rootstock, four-angled, leafy, branching at summit; leaves alternate sessile, lanceolate or ovate-oblong, acuminate at apex, coarsely serrate; flowers large in a simple or compound spike; corolla labiate, throat open.



FALSE DRAGON-HEAD is one of the most splendid American representatives of the Mint Family. Like the Skull-caps and the False Snap-dragon, it has no perfume, doubtless depending on the showiness of its flowers to attract insects. Most of this family have small-whitish or purplish insignificant flowers in dense clusters. Physostegia Virginiana, on the other hand, has large, handsome blossoms in a rather long spike or cluster of spikes. They are rose-purple in color, more or less spotted with a darker shade. In general appearance they remind us somewhat of those of the Fox-glove. The foliage is of a dark, glossy-green color. The whole plant is smooth, the stem slender and upright, making the Physostegia a strikingly elegant feature in a landscape. As it grows in open woods or in upland fields, its beauty is seen to full advantage. It is certainly remarkable that this showy plant has not found its way into our gardens.

The False Dragon-head grows wild from Western Canada and New England south to the Gulf and west to Texas, opening its pretty flowers in gradual succession in July and August. There is a closely allied species in Kentucky and southwestward.



— 227 —

SPREADING POGONIA.

POGONIA DIVARICATA.



— 228 —

YELLOW FOX-GLOVE.

DASYSTOMA PEDICULARIA.

PLATE 227.

SPREADING POGONIA. POGONIA DIVARICATA. (ORCHIS FAMILY.)

Stem erect from a cluster of thickened fibrous roots, simple, quite smooth, sometimes two feet high; leaves two, the lower near the middle of the stem, oblong-lanceolate, the upper just below the flower, narrower; flower solitary, large, nodding; sepals narrow, wide-spreading; lip three-lobed and crested.



PERHAPS the most handsome of our species of Pogonia is the Divaricata. Though not as showy as the Snake-mouthed Pogonia, it is more delicate, and the flower is more strikingly odd in its structure. The stem is taller than in the other species, sometimes attaining the respectable height of two feet. It bears two leaves, the upper close under the flower. The latter nods solitary at the summit of the stalk. It is larger than the blossom of any other American species. It is not so brightly colored as that of Pogonia Ophioglossoides. The sepals are long and narrow, brown in color, while in the Snake-mouthed Pogonia they are of the same hue as the petals. The petals in Pogonia Divaricata are pale flesh-color, and do not spread widely like the sepals. The lip is also pale pink, more or less spotted with yellow-green. The edges are slightly inrolled, giving it a peculiar trough-shape. It bears a raised line or crest along the center.

Pogonia Divaricata is mostly a pine-barren plant of the coastal plain, growing in either moist or dry soil. It has also been met with on oak-covered ridges in the interior of the continent and straying northward.

PLATE 228.

YELLOW FOX-GLOVE. DASYSTOMA PEDICULARIA. (FIGWORT FAMILY.)

Usually annual; viscid glandular pubescent; stem erect, widely branched, leafy; leaves ovate in outline, the upper lanceolate, pinnatifid, the lobes pinnately toothed, uppermost much reduced; flowers on slender, axillary peduncles; corolla large, campanulate, two-tipped, throat woolly; stamens four, in pairs, anthers woolly.



EACH season of the circling year floats a hue all its own in its bannerets of field and woodland. In early spring, white and delicate shades of pink and blue are the modest colors of the sweetly simple dress worn by the first wild flowers. Queenly summer begins her reign with a blaze of crimson and scarlet and purple, the proper hues of royal state. With the later summer comes the season of yellow. The flowers catch and hold the golden sunshine that is ripening fruit and grain. It is the time of the bold Sunflowers, and the brilliant Golden-rods follow fast upon them. Then, when

"A noble grief
Has beautified the woods in their decay,"

the last wild flowers—Asters and Gentians—put on the color of the sky, a deep and tender blue, well in keeping with the mild sadness of October.

Coming with the Sunflowers, attuned to their bright yellow, are the Dasystemas, the False or Yellow Fox-gloves. Of these, one of the most familiar is Dasystema Pedicularia, a handsome, bushy-branched plant of dry hillside woods. The large, bell-shaped, light yellow blossoms are not unlike those of the European Fox-glove. This species ranges from Canada and New England to Arkansas and Florida, blossoming in August. The whole plant is covered with sticky, glandular hairs.



— 229 —

BEACH PEA.

LATHYRUS MARITIMUS



— 230 —

TRICARDIA WATSONI.

(WATER LEAF FAMILY.)

PLATE 229.

BEACH PEA. LATHYRUS MARITIMUS. (PEA FAMILY.)

Stem rather stout, smooth, branching, striate, leafy; leaves alternate, almost sessile, pinnate, with large, ovate, sagittate stipules; leaflets rhombic-ovate, mucronate, veiny; rhachis terminating in a branching tendril; flowers few in long-peduncled racemes, blue-purple; pods flattened, pointed, few-seeded.



ORDSWORTH, viewing nature as it appeared about his inland home by the beautiful Westmoreland Lake, wrote of flowers that reflect

"The common countenance of earth and sky."

But, in the Beach Pea, we have a plant that mirrors the hue of sea and sky, the clear green of the ocean in its leaves, the fresh blue of the summer sky in its blossoms. It is a plant of the Atlantic coast, from New Jersey to the shores of the Northern sea. It is also found on the Pacific seaboard, northward from Oregon to the Arctic Ocean. It belies its name "Maritimus" to a certain extent, by appearing on the shores of the Great Lakes, perhaps as a survivor from the distant time when old ocean covered their beds.

It is a handsome plant, the Beach Pea, much recalling the form of its lovely relative, the Sweet Pea of our gardens. The stem is erect when young, but soon learns to depend on other plants for support. For this purpose its branching tendrils are well adapted. The blossoms are rather small when compared with those of most Wild Peas. In color they are deep purple-blue, almost violet, fading to a lighter shade.

The Beach Pea flowers in late summer. It is not confined to the New World, occurring in Europe as well, where

"The tired ocean crawls along the beach,
Sobbing a wordless sorrow to the moon."

PLATE 230.

TRICARDIA WATSONI. (WATER-LEAF FAMILY.)

Long perennial; stems hairy, branching from near the base, ascending; leaves alternate, oblong, the lower long-petioled, the upper ovate, almost sessile, entire, acute at both ends; flowers few in a bracted raceme; outer three sepals much enlarged in fruit; corolla purple, slightly five-lobed.

"Behold a purple flower,
Fainting through heat, hang down her drooping head,
But soon refreshed with a welcome shower,
Begin again her lively beauties spread,
And with new pride her silken leaves display;
And while the sun doth now more gentle play,
Lay out her swelling bosom to the smiling day."



TRICARDIA WATSONI is the only species of its genus. It is one of the many rare plants of the great West that have been collected a few times by professional botanists, but are almost unknown to plant lovers in general. It was found at one or two points among the foot-hills of mountains of Western Nevada, about four thousand feet above the sea. The discoverer was the well-known botanist. Sereno Watson, to whom Dr. Torrey dedicated the species. The name of the genus, Tricardia, means "three hearts," a pretty allusion to the large, membranaceous, beautifully veined outer sepals, which are heart-shaped at the base.

The Tricardia is a handsome plant. The flowers, pale purple in color, are small, but dainty. The corolla is shaped like a delicate little tea-cup, except for the wide-spreading border. The most conspicuous parts of the plant are the large thin sepals, that remind us of the papery involucre leaves of some of the Four-o'-clocks.

The Water-leaf Family, to which our plant belongs, is remarkable for the almost total absence of any important qualities. Most of these plants are very beautiful—none are of value economically. Some authors have united them with the Borage Family.



— 231 —

STRIPED MAPLE.
ACER PENNSYLVANICUM



— 232 —

ROTHROCK'S NAMA.
NAMA ROTHROCKII.

PLATE 231.

STRIPED MAPLE. ACER PENNSYLVANICUM. (MAPLE FAMILY.)

Small tree, with slender trunk; bark gray-green, with dark green striations; leaves large, pubescent when young, short ovate or almost orbicular in outline, three-lobed, lobes acuminate, closely double-serrate; flowers slender-pedicelled, in drooping racemes; petals obovate, greenish, much longer than the calyx-lobes; wings of fruit broad and divergent.



IF our gardeners were to impress forest-trees into their service, they might well begin with the Maples. Always handsome and graceful in trunk and spray and foliage, they are easily our first favorites. Whether in their native forests or amid the tamer surroundings of park or lawn, a well-grown Maple is a thing of beauty. Several European species, the Norway Maple, the so-called "Sycamore" (*Acer Pseudo-Platanus*), and *Acer Campestre*, are much cultivated in America. They are not more beautiful than several of our native species. The stately Sugar-maple, whose sap contains rich stores of delicious sugar, the striking looking Silver-maple that grows with willow and birch along our rivers, and the superb Red-maple, that dons a garb of crimson in spring and again in autumn, are first among our eastern maples. Several Rocky Mountain species are equally handsome.

Of the smaller species, the prettiest is the Striped or Rock Maple, *Acer Pennsylvanicum*, a native of Eastern North America, from Canada and New England to Minnesota and southward along the mountains to Georgia. The large, bright green leaves and the greenish-yellow flowers in gracefully drooping racemes, give it a very different look from other maples. The bark, which is olive-green with dark stripes, is an odd feature of this little tree.

PLATE 232.

ROTHROCK'S NAMA. NAMA ROTHROCKII. (WATERLEAF FAMILY.)

Root perennial, woody; stem branching from the base, herbaceous, densely clothed with a short white pubescence; leaves alternate, sub-sessile, narrowly oblong, deeply toothed, obtuse at apex, base acute, hairy; flowers numerous in a dense terminal cluster; corolla funnel-shaped, little longer than the sepals.



HERE we have a genus almost exclusively North American, only a single species of *Nama* being found outside of North and South America. The only foreign species is a native of the Sandwich Islands. These plants are tropical or subtropical. In this country most of the species are inhabitants of the Southwest. One, *Nama Jamaicense*, occurs along the Gulf coast as far east as Florida, and is also found in Mexico and on some of the West India islands. The genus was named by Linnæus from a Greek word meaning "a spring," because most of the species are found in moist places.

Nama Rothrockii is one of several species of California. It is found along the Kern River in the southern part of that State, growing in low meadows. It is a local plant, occurring in a very restricted territory. It is handsome, low of stature, with narrow, deeply cut leaves. The whole plant is covered with soft hairs. The flowers are quite pretty, rose-purple in color, forming a crowded, spike-like cluster.

Nama Rothrockii was named by Dr. Gray in honor of Dr. J. T. Rothrock, botanist to Wheeler's Expedition, and author of the botany of the report of that expedition.

PLATE 233.

PALE CORYDALIS. CAPNOIDES SEMPERVIRENS (CORIDALIS GLAUCA.) (FUMITORY FAMILY.)

Biennial, whole plant smooth, glaucous; stem erect, much branched, usually rather stout; lower leaves much dissected, uppermost nearly entire; flowers in more or less panicle racemes; corolla very irregular, with a single, conspicuous spur; pods long, narrow.

"June 6, 1853, 4.30 A. M.—*Corydalis glauca*, a delicate glaucous plant rarely met with, with delicate flesh-colored and yellow flowers, covered with a glaucous bloom, on dry rocky hills. Perhaps it suggests gentility. Set it down as early as middle of May or earlier."—THOREAU.



HIS handsome plant, rare in many localities, is yet not an uncommon tenant of dry rocks. It is met with in the wide ranges of the East and far to the North and West. Commencing to flower in May, it puts forth its blossoms bravely even as late as August, though the scorching heat of the dog-day sun upon the rocks whereon it grows has completely withered its leaves. It is odd that so fragile a little plant can bear so sturdily the heat that blasts everything else about it.

The foliage, like that of all the plants of the Fumitory Family is delicately cut and dissected and is white with a light bloom. The flowers are small. They are oddly fashioned, a spur protruding at the base. The prevailing tint is a delicate rose-color, while the tip is of pale lemon-yellow, an exquisite combination.

The Fumitories, like their cousins the Poppies, are almost always delicate plants with brittle stems. They differ in their irregular flowers.

PLATE 234.

WHITE AVENS. GEUM ALBUM. (ROSE FAMILY.)

Stem hirsute, erect, widely branched above, zig-zag; root-leaves, compound or more often simple and round-heart-shaped; stem-leaves of three rhombic-ovate, coarsely serrate and often obscurely lobed leaflets; siliques rather large; blossoms in a few-flowered terminal corymb; petals five, small; achenes crowded on the receptacle, tipped with the hooked styles.



THOUGH the Rose Family are usually handsome plants, there are some remarkable exceptions to the rule. The Agrimony, for instance, a rough-hairy weed-like plant with insignificant yellow flowers and bur-like fruit, a common denizen of woods and thickets, possesses little of the family elegance. The White Avens, too, is a plant not much to be praised for outward beauty, though revealing much of interest to him who is curious enough to examine its structure. The stem is hairy, the leaves rather coarsely lobed and toothed, the flowers small and unattractive. Much showier than the five white petals is the head of fruit. Each separate fruit is tipped with the much elongated style, which is curiously twisted above the middle. The upper part breaks off when old, leaving the lower part with a hook at the end, so that the whole head forms a bur, ready to take hold of anything that comes along, and steal a ride to a new place of sowing. The White Avens inhabits rich moist woods and thickets, throughout Eastern North America, flowering pretty much all summer.

Although *Geum Album* is not a particularly handsome plant, others of the genus possess claims to good looks. *Geum Rivale*, the Purple Avens, common to this country and Europe, is quite a pretty plant. *Geum Radiatum*, a species with bright yellow flowers, native in the mountains of North Carolina, is really showy.



— 233 —
PALE CORYDALIS.
CAPNOIDES SEMPERVIRENS.



— 234 —
WHITE AVENS.
GEUM ALBUM.

PLATE 235.

VETCH. VICIA CRACCA. (PEA FAMILY.)

Perennial pubescent; stem slender, branching, climbing by tendrils; leaves alternate, pinnate, leaflets ten or twelve pairs, the leaf ending in a tendril; flowers in long-peduncled axillary, rather dense racemes; corolla violet-blue, much exceeding the calyx; pod broad, flattened, few-seeded.



AMONG field weeds in the Old World, Vetches or Tares have long been known as the most troublesome. The parable of the sower and many other allusions to these plants in the Bible show how much they were detested in the East thousands of years ago. The common Vetch, *Vicia Sativa*, is the most abundant species in Europe, and is a serious pest when it gets into grain-fields. This, as well as several other Old World species, has become naturalized in North America, but has hardly made itself known yet as a noxious weed. Our native species are rather shy and retiring plants, confining themselves to uncultivated fields and to woods and thickets. *Vicia Caroliniana* is one of the prettiest of our Vetches. It is a delicate little plant, with slender racemes of white or bluish flowers, not uncommon in open dry woods, especially southward. *Vicia Americana* is larger and coarser, having pale purple flowers.

Vicia Cracca is a native of Europe, as well as of the northeastern part of North America. It is found in Newfoundland, and thence along the Atlantic coast to New Jersey and southwestward to Kentucky. It is a hairy plant, the flowers in dense clusters, blue at first, becoming purple. A good many other plants have this chameleon quality, and in a higher degree. The flowers of the Changeable Hibiscus are white in the morning, pink at noon, and bright red by sundown. A bright pink Phlox has, in early morning, a light blue color, which gradually passes to the normal hue of the flower. To the naturalists, who ever seek an explanation in a gain, this habit suggests an attractiveness to a widened variety of insect ministers, just as the fisherman changes his bait so as to catch a new kind of fish.

PLATE 236.

WATER LEAF. HYDROPHYLLUM VIRGINICUM. (WATER-LEAF FAMILY.)

Rootstock short, scaly; stem erect, sparingly branched, a foot or two high; leaves few, scattered, long-petioled, pinnatifid, segments ovate-lanceolate, deeply and sharply toothed; flowers in compound cymes; corolla blue, exceeding the narrow calyx-lobes, open bell-shaped; stamens considerably exerted, anthers linear.

"Plants that hourly change
Their blossoms, through a boundless range
Of intermingling hues;
With budding, fading, faded flowers
They stand, the wonder of the bowers
From morn to evening dews."—WORDSWORTH.



FLOWERS of the Water-leaf are arranged in the form of cluster known as a cyme. The blossom in the center of the cluster opens first, then the next, and so on to the outermost. Thus we have "budding, fading, faded flowers" on the same plant at the same time. It strangely enhances the beauty of a newly opened blossom that there should be both withered and unopened flowers beside it. The fullness of life is all the fairer if youth and old age are beside each other to afford contrast.

Hydrophyllum Virginicum is a plant of rich woods in Eastern North America. It is most common northward, but is not infrequent at higher altitudes in the South. It blossoms all summer. This Water-leaf is a handsomer plant than most of the others. The dark green leaves, deeply cut and lobed, go well with the blue-purple flowers. These are lacking in odor, as in most of the family. When the Water-leaf is endowed with odor, it is usually disagreeable, as in the Cut-leaved *Phacelia*.



— 235 —
 VETCH.
Vicia cracca.



— 236 —
 WATER LEAF.
Hydrophyllum virginicum.

PLATE 237.

AGRIMONY. AGRIMONIA STRIATA. (ROSE FAMILY.)

Perennial; stem erect from a cluster of tuberous-thickened roots, more or less hairy, sparingly branched; leaves interrupted-pinnate, with coarsely-toothed stipules; leaflets five or seven, oblong-obovate, with much smaller ones between; flowers small, in slender spike-like racemes; petals five, yellow; fruit two achenes enclosed in the bristly, top-shaped calyx-tube.

"I grieve not that ripe knowledge takes away
The charm that nature to my childhood wore,
For, with that insight, cometh day by day,
A greater bliss than wonder was before;
The real doth not clip the poet's wings,—
To win the secret of a weed's plain heart
Reveals some clew to spiritual things,

And stumbling guess becomes firm-footed art;
Flowers are not flowers unto the poet's eyes,
Their beauty thrills him by an inward sense;
He knows that outward seemings are but lies,
Or, at the most, but earthly shadows, whence
The soul that looks within for truth may guess
The presence of some wondrous heavenliness."—JAMES RUSSELL LOWELL.



IF woodland plants could be called "weeds," the title would belong to the Agrimonies. But, as denizens of the forest are hardly "plants out of place," it does not seem quite fair to bestow so opprobrious a name on plants so little harmful. Unsightly and coarse, our species of Agrimonia certainly are. They are, for the most part, rough-hairy herbs. The flowers are small and inconspicuous, with orange-yellow petals. The fruit is more interesting. It consists of two achenes, much like the "seeds" on the outside of a Strawberry. These are completely enclosed in the calyx, which becomes hardened as the fruit matures. It is oblong top-shaped, beset with hooked bristles, making it a bur.

Agrimonia Striata is known in most of the books as Agrimonia Eupatoria. That, however, is a European plant, quite different from ours. Agrimonia Striata inhabits woods and thickets, preferring a rather rich soil. It ranges pretty much throughout extra-tropical North America, flowering from July to the end of summer. It is common almost everywhere. An interesting feature is the root, which consists of a cluster of fibres. Some of these are thickened at the ends like the tuberous roots of the Sweet Potato.

PLATE 238.

FORGET-ME-NOT. MYOSOTIS LAXA. (BORAGE FAMILY.)

Rootstocks slender, creeping; stem much branched, decumbent or almost erect, leafy, appressed-hairy; leaves alternate, oblong-lanceolate, covered with rough, appressed hairs; flowers small, in long, slender racemes; corolla blue, five-lobed, little exceeding the five-cleft calyx.

"When to the flowers so beautiful,
The Father gave a name,
There came a little blue-eyed one
(All timidly it came),
And standing at the Father's feet
And gazing in his face,

It said in low and trembling tones,
Yet with a gentle grace:
'Dear Lord, the name thou gavest me,
Alas, I have forgot;'
Kindly the Father looked Him down
And said, 'Forget-me-not.'"



THIS beautiful little plant of marshes and slow running water has been praised and admired since the dawn of history. Some of the sweetest lines of English poetry have been inspired by its meek grace. The emblem of undying love, it is identified with the holiest sentiments. The shy blue eyes, with which it looks up from its humble home by the brookside, seem to speak of modesty, constancy, innocence—all that is most noble. No wonder that with every European people it has been a favorite.

Though we have not Myosotis Palustris, the true European Forget-me-not, in this country, except where it has become naturalized, we have a nearly-related species, Myosotis Laxa, which is considered a mere variety of the European plant. It is found in shallow streams, from Eastern Canada southward as far as North Carolina, flowering all summer. It has blue flowers with a yellow eye, even smaller than those of Myosotis Palustris.



— 237 —
 AGRIMONY.
 AGRIMONIA STRIATA.



— 238 —
 FORGET-ME-NOT.
 MYOSOTIS LAXA.
 MAY

PLATE 239.

ROTHROCK'S SPURRED GENTIAN. *HALENIA ROTHROCKII.* (GENTIAN FAMILY.)

Stem smooth, erect, much-branched, rather slender, four-angled, angles slightly winged; leaves opposite, narrowly linear; acute at apex, sessile, thickish, one-nerved; flowers on long, slender, axillary peduncles; corolla four-lobed, lobes ovate, with long spreading spurs.



LONG spurs, or cylindrical extensions of the petals, with glands at their ends holding the nectar that insects love, are of frequent occurrence among plants widely different in other features. The Columbines, Larkspurs and Aconites in the Crowfoot Family have them. They are conspicuous in the Violets. The Toad-flax and other Figworts also possess spurred corollas. The long nectariferous spurs aid greatly in giving the odd, irregular appearance to the flowers of Orchids. In the Gentian and allied families such spurs are rarely met with. So that the genus *Halenia*, in which these projections are usually very prominent, is quite easily distinguished from its relatives. *Halenia Deflexa*, a species with greenish or whitish-purple flowers, is found in New England and Eastern Canada, and thence westward and far northward. *Halenia Rothrockii*, a much showier plant, grows in Arizona. It has been collected only on Mt. Graham, where it was found by the indefatigable botanist for whom it was named. It is a handsome plant, low and with slender branching stems. The leaves are smooth and narrow. The blossoms are showy, bright yellow in color. The spreading spurs give them an odd look, not unlike the flowers of the Columbine.

In some species the spurs are occasionally wanting. Whether this is ever the case in Rothrock's *Halenia*, we do not know.

PLATE 240.

SMALL PERIWINKLE. *VINCA MINOR.* (DOGBANE FAMILY.)

Stem somewhat woody at base, procumbent, leafy, very smooth; leaves opposite, short-petioled, ovate, obtuse, smooth, thickish, shining above, evergreen; flowers solitary in axils of upper leaves, short-pedicelled; corolla salver-shaped, five-lobed, lobes somewhat oblique; ovary with two glands at base; fruit a pair of slender follicles.



THE Small Periwinkle is an Old World plant, a native of Central and Southern Europe, extending eastward into the region of the Caucasus, and northward, though probably introduced, into England. It delights to dwell in cool, moist woods. It is in old graveyards, with the ivy, where, especially,

"The periwinkle trails its wreaths."

In this country it is sometimes cultivated, but it is not often met with outside of burial-places. In cemeteries it is always at home, covering the cold ground with its kindly shelter of dark green leaves and pretty blue flowers. Here and there it has escaped from these shade-faunts, but very sparingly. Its period of flowering is usually protracted, but May and June find it in its prime.

Vinca Minor is a singularly elegant plant. No term better indicates its character. The stems, slender, trailing upon the ground; the leaves, dark green, smooth and polished; the flowers, with their salver-shaped corollas, whose lobes curve upon each other like the volutes of a turbine-wheel—every part is beautiful and graceful in the extreme. There is something restful about the color of the blossoms, a light, clear azure.

Vinca is from a Latin word meaning "a band," because of the long wreath-like stems. The name "Periwinkle" has the same origin.



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ROTHROCK'S SPURRED GENTIAN.

HALENIA ROTHROCKII.

AUGUST.



— 240 —

SMALL PERIWINKLE.

VINCA MINOR.

MAY.



— 241 —

DOG'S TOOTH VIOLET.

ERYTHRONIUM AMERICANUM.

MAY.



— 242 —

WATER ARUM.

CALLA PALUSTRIS.

JUNE.

DOG'S TOOTH VIOLET. *ERYTHRONIUM AMERICANUM* (LILY FAMILY.)

Stem weak, rising from a deep, rather small, scale-coated corm; fertile plants bearing two opposite leaves and a solitary nodding flower; leaves oblong-lanceolate, acute at both ends, upper surface mottled; perianth segments six, deep yellow, spreading at the tips.



N the open woods of March or April, one comes upon a rare symbolism of Death and Resurrection. Thick upon the ground lie the dead leaves of autumn, shriveled and, frayed by blasts from the north. Among these sere strewings arise a thousand tender flowers of the *Erythronium*. Here is one sturdy enough to bear aloft the remnant of what was once a spreading oak-leaf. Near by is a blossom which can scarce expand itself through the rift in the withered maple-leaf that girds it about. Flowers more chaste than these the all-beholding sun does not shine upon. They are stainless, without trace of the black mould which gives them birth. Dark decay is transformed to unsullied purity.

In form these flowers are lily-like, with the segments curved back much as in the Turk's Cap. The color is a bright, rich yellow, contrasting pleasantly with the red-brown of the long anthers. They are among the most striking of the early wild flowers; they are named "Dog's Tooth" because of a fancied resemblance of the small white bulbs that develop from the parent one to the teeth of our canine friend. Linnæus, who had a fancy for making botanical names by translating the popular titles into Latin, called the common European species, *Erythronium Dens-canis*.

WATER ARUM. *CALLA PALUSTRIS*. (ARUM FAMILY.)

Smooth perennial; rootstock stout, elongated; leaves ovate-heartshaped on rather long dilated petioles, short-pointed; flowers on separate stalks in an oblong spadix; spathe open, white, sharp-pointed; lower flowers perfect, upper often staminate only; stamens six; fruit a cluster of separate red berries.



HE WaterArum is no exception to the rule that in this country the most beautiful and interesting of the wild flowers must be sought for in deep forests or in the tangled fastnesses of swamps and bogs. In Europe, Primrose and Violet, Bluebell and Poppy grow in the open fields and roadsides, while the wood flowers are pale and insignificant. With us, however, the fairest, and, what is still more strange, often the most gaily colored of the flowers are the most hermit-like in habit.

Calla Palustris, which is a plant of Europe as well as of America, is much more retiring here than there. Like a recluse who has been forced into uncongenial publicity, its first use of freedom is to retreat once more to solitude. It grows in deep, cool peat-bogs, and like so many of its sister Arums, it is a beautiful little plant. The bright green of the large, heartshaped leaves is an effective setting for the milk-white of the inner side of the floral leaf, and the golden treasure of flowers that nestle against it on their club-shaped spadix. Their rootstock is long and thick, creeping amid the moss. The *Calla* blossoms in midsummer, later than most of its allies.

The Egyptian *Calla*, that superb favorite of the greenhouses, is a *Richardia* and not a true *Calla*.



— 243 —

ONE-FLOWERED CANCER-ROOT.

APHYLLON UNIFLORUM.



— 244 —

BEARD TONGUE.

PENTSTEMON PUBESCENS.

PLATE 243.

ONE-FLOWERED CANCER-ROOT. APHYLLON UNIFLORUM. (BROOM-RAPE FAMILY.)

Plant brown-white, without green coloring-matter ; one-flowered scapes rising from an underground, short, simple or branching stem, which is covered with small appressed scales, while the scapes are naked ; flowers rather large ; corolla five-lobed, two-lipped, the lower spreading ; stamens shorter than the corolla lobes.



UNMISTAKABLE, indeed, is the moral that nature has pointed for us in the spectacle of parasitism and its results. The sure degradation that follows the habit of living upon the exertions of another is illustrated as plainly among plants as among animals. A wholesale instance of parasitism and consequent degradation is that of the great class, the Fungi. Having rendered the possession of green-coloring matter for the digestion of mineral food useless, by their habit of preying upon other plants and upon animals, they have gradually lost the power of existing independently. There is in Nature no inherent tendency to improvement. In conditions of healthy struggle the forces of adaptation carry a plant up the ladder of life. When the plant gets its food without effort, by sheer thievery, these same forces of adaptation bring it down to lower and lower levels of existence.

Some of the higher plants have started upon this downward path. The Dodders in the Morning-glory Family, the Mistletoe and the Indian Pipe are examples. Many of the Figworts, though possessing green-coloring, are partly parasitic, their roots attaching themselves to other plants. An allied family, that of the Broom-rapes, has become completely parasitic, all green-coloring having disappeared.

The One-flowered Cancer-root, *Aphyllon uniflorum*, belongs to the last family. 'Tis a small plant of a tawny or almost white color ; the leaves being represented by tiny scales. It is parasitic, usually on Golden Rods and Asters, blossoming in April and May, or even later. It has an extensive range in North America—from Canada to the Gulf of Mexico, from the Atlantic to the Pacific.

PLATE 244.

BEARD TONGUE. PENTSTEMON PUBESCENS. (FIGWORT FAMILY.)

Perennial pubescent ; stems usually clustered rising from a short, thick root-stock, simple below, branched toward the summit ; root-leaves ovate-oblong, dentate, long-petioled ; stem-leaves opposite, sessile, oblong-lanceolate ; flowers rather large, forming a thyrsoid panicle ; corolla two-lipped, throat filled with a densely-bearded palate.



THIS pretty plant is not unworthy of its family. Belonging to a group of plants famous more for their beauty than for any other quality, it is inferior to few of them in appearance. It is a native of Eastern North America, ranging from the seaboard to the mid-continent and south to the gulf, extending into Texas. Though rare, it is found in New England and Eastern Canada, but abounds further South and West. It is a denizen of open woods and thickets, and of upland fields, liking best a dry sandy soil. The large showy blossoms are in a long, narrow cluster, the lower opening first, the upper opening in slow succession until the apex of the inflorescence is reached. The period of flowering is from May in the South to as late as July northward. The corolla is two-lipped, almost closed by a projection or "palate" covered with soft white hairs. The color is usually a pale purple, varying to almost white on the one hand, and to a deep rose-purple on the other. One of the five stamens—the name *Pentstemon* signifies that five is the number of those organs in this plant—consists merely of a stalk without an anther. This stalk or filament is bearded like the palate.



— 245 —

SKUNK CABBAGE.
SYMPLOCARPUS FOETIDUS.



— 246 —

FRITILLARY.
FRITILLARIA PUDICA.

PLATE 245.

SKUNK CABBAGE. SYMPLOCARPUS FOETIDUS. (ARUM FAMILY.)

Plant quite smooth, perennial; rootstock thick and creeping; leaves appearing after the flowers, fleshy, long-petioled, ovate-oblong, veiny, bright green; flowers in a short, dense, rounded spadix, subtended by a large, hood-shaped, fleshy, pointed spathe.



EUROPE has the Snow-drop, and this country the Skunk Cabbage, as the earliest wild flower of spring. In certain localities in those first warm days of March, or even, mayhap, in February, when winter takes a breathing-spell while nerving himself for his last struggle, this odd plant appears. No other sign of life is there in meadow or forest, save the Alders that hang their yellow tassels by stream or pond, shaking out showers of golden pollen as the breeze lifts them.

"When earth hath felt the breath of spring,
Though yet on her deliverer's wing
The lingering frosts of winter cling."

Out of the cold black soil of bog and meadow rises the pointed flower-leaf of the Skunk Cabbage, exquisite in form, curled like some dainty sea-shell. Dark purple is its color, mottled and striped with yellow. Concealed near the base of the cavity of this hood-shaped leaf is the round, compact spike of flowers. When spring is well advanced and the early flower-leaves have melted in mortality, the true foliage-leaves appear in tufts, large and of a bright, delightful green. A very handsome plant is the Skunk Cabbage, despite its unmelodious and unpleasantly suggestive name.

It is the characteristic odor for which the Symplocarpus is most famous, "a strong odor like that of the skunk and also somewhat alliaceous," writes Gray. The strength and disagreeableness of this odor have been much exaggerated. In the open air it is barely noticeable. Its function is to attract the flies necessary for cross-fertilization.

PLATE 246.

FRITILLARY. FRITILLARIA PUDICA. (LILY FAMILY.)

Stem erect from a compact, scaly bulb; four to twelve inches high, simple, quite smooth; leaves few, linear, alternate, opposite or whorled; flower solitary, terminal, nodding; perianth campanulate; segments six, oblancoate, orange-yellow, with some purple color; capsule obovoid-oblong, obtusely six-angled.



HANDSOME is the tulip-like flower of European meadows and bogs, the Fritillary, *Fritillaria Meleagris*. It is a low plant, not much over a foot high, with narrow leaves and a single nodding flower at the top of the stalk. This solitary blossom is bell-shaped, dull red in color, with odd lines and markings of a deeper hue inside.

Like so many genera of Western Europe, *Fritillaria* appears in Western North America. Here, instead of one or two species, there are a large number of forms. All are beautiful plants, graceful in habit and showy in flower. The color of the blossom is almost always red or reddish-yellow, with spots and bars and checks of deeper red or purple. *Fritillaria Pudica* is one of the best known of these plants. It has an extensive range in the Rocky Mountain region, from Nevada and Utah to the southerly stretches of Canada. The usually solitary blossom opens in earliest spring. The flower is much like that of the Adder's Tongue, bell-shaped, the segments spreading slightly at the tip. It is of an orange-yellow color, with a suggestion of purple, not spotted nor chequered like most of the genus. The stem rises from a scaly bulb, like that of a Lily. *Fritillus*, Latin for dice-box, has for resemblance sake, given this flower its name.



— 247 —

ROUND-LEAVED SUN-DEW.

DROSERA ROTUNDIFOLIA.

MAY.



— 248 —

MICHAUX'S SAXIFRAGE.

SAXIFRAGE MICHAUXII.

APRIL—JUNE.

PLATE 247.

ROUND-LEAVED SUN-DEW. *DROSERA ROTUNDIFOLIA*. (SUN-DEW FAMILY.)

Leaves all radical, rosulate, on long slender ciliate petioles, orbicular, the margin fringed with viscid, gland-tipped, reddish hairs; scape slender, bearing a slender, few-flowered, one-sided raceme, uncoiling as the flowers expand; petals white, five or six; stamens five or six.



FEW plants excite more general interest and concern than those that live wholly or partly on animal food. Not to mention the Bacteria and many of the Fungi that live parasitically on animals and man, there are isolated groups among the higher plants that support themselves to some extent by entrapping and assimilating the bodies of insects. The Pitcher-plants or Side-saddle flowers, species of *Sarracenia*, are good examples. Of the same habit are the smaller and less known Sun-dews, cousins to the famous *Dionæa*, Venus' Fly-Trap.

The species of *Drosera* are natives of sandy bogs, mostly in temperate regions. The margin of the leaf is fringed with red hairs, each tipped with a round gland. From this gland exudes a drop of a viscid liquid, that glistens in the sunlight; hence the pretty name, "Sun-dew." This strange secretion has much the same solvent power as gastric juice. When an unwary gnat or other insect alights on the surface of the leaf, the marginal hairs, as if they saw a dinner before them, bend in toward the centre of the leaf, cover the unfortunate visitor with their sticky secretion, and so hold him prisoner until the tissues of the leaf have digested as much of him as they can. Then the hairs return to their normal position, awaiting another meal.

Rotundifolia is the most common species of *Drosera* in North America. It flowers in late summer.

PLATE 248.

MICHAUX'S SAXIFRAGE. *SAXIFRAGA MICHAUXII* (*LEUCANTHEMIFOLIA*). (SAXIFRAGE FAMILY.)

Perennial; with a short rootstock; stem erect, hairy, much branched; root-leaves rosulate, on long, hirsute petioles, obovate or spatulate, stem-leaves short-petioled, uppermost bract-like, all coarsely laciniate-toothed; flowers in open, compound cymes; petals five, white, three of them heart-shaped at base, the other two narrowed; fruit, two divergent foliicles.



SAXIFRAGES are not very well-known plants, though abundant in temperate regions in every part of the World. That is, there is very little of poetry and sentiment associated with them—they have missed the written word that gives fame her wings. One European species is, in the language of flowers, the symbol of affection. Doubtless because this kind makes its home on mossy rocks, nestling in the clefts, this idea has become associated with it. Why not give the same meaning to our own rock-growing species?

Weighty, if unacknowledged, is the debt of America to the explorers, the men of science of France. Of this debt the plant before us serves as a remembrancer.

Saxifraga Michauxii is named after the sturdy French collector and traveler, whose name is so intimately connected with North American plant-lore. A large proportion of our native plants received names at the hands of this old voyageur. Especially is this the case with the flora of the mountain region of the South. Michaux himself named this Saxifrage, *Leucanthemifolia*; but, as that name had already been given to another species, this one has been recently entitled *Saxifraga Michauxii*.

It is a small plant, growing in cool, springy places in the mountains from Georgia to Virginia, and straying northward. The leaves are deeply cut, though the resemblance to those of the White-weed, which Michaux saw when he named the plant *Leucanthemifolia*, is not very striking. The flowers are white, rather large for a Saxifrage.

PLATE 249.

ANDROSTEPHIUM VIOLACEUM. (LILY FAMILY.)

Perennial from a rounded corm, enveloped in a few loose membranaceous scales; leaves all radical, narrowly linear, grass-like; scape exceeding the leaves; flowers in a terminal umbel; perianth segments six, blue, united for about half their length into a tube; filaments of the stamens united into a tube on the throat of the perianth.



NEAR relative of the beautiful Camassias and Squills, and therefore of the Onions, is *Androstephium Violaceum*. Like so many of the bulbous-rooted Lilies it inhabits the sun-scorched prairies of the West, occurring in western Kansas, straying northward and abundantly southward to Texas. It blossoms in spring, like most of the more delicate prairie flowers. While in the East the most fragile plants are flowering in the shades of our forests throughout the summer, all but the hardiest flowers of the plains hasten to appear in earliest spring, spreading a carpet of brilliant color over the treeless ground. Then, when summer's heats begin to dry the life-giving moisture from the soil, such as live through more than one season, ripen their seed and wither away above ground, leaving only the thickened root or bulb to send up leaves and flowers when spring shall come again.

Androstephium Violaceum is a low plant, not above half a foot high. The leaves are narrow and onion-like. The flowers are rather showy, pale lilac in color. The name *Androstephium* means "a crown of stamens," because the stamens are united into a ring which crowns the perianth.

PLATE 250.

BUTTERWORT. PINGUICULA LUTEA. (BLADDERWORT FAMILY.)

Acaulescent; leaves rosulate, oblong-ovate or obovate, margins sparingly ciliate toward the base, with soft, clammy hairs; scapes simple, one-flowered, one foot or so high, viscid-pubescent; flower large, bright yellow; calyx five-lobed, two-tipped; corolla two-lipped, upper lip two-lobed, lower three-lobed, ending in a slender spur.



PINGUICULA VULGARIS, the common Butterwort, is a small, smooth, purple-flowered plant, growing on moist rocks in the northern part of Europe, Asia and North America. It does not grow further south than Northern New York and Minnesota. With it often grow two tiny native Primroses, *Primula Farinosa* and *Primula Mistassinica*. Down in the Gulf States, however, in the shallow pine-barren swamps, three handsome species of *Pinguicula* are found. Two have blue or violet flowers like *Pinguicula Vulgaris*. The third, *Pinguicula Lutea*, has large and showy, bright yellow corollas. This is one of the most beautiful of all the gay, highly-colored flowers that deck the sandy, pine-covered coastal plain. The corolla is irregular, delightfully irregular. It is two-lipped, the lips prettily lobed, and ends in a short spur. The leaves are yellowish-green, clustered in a rosette at the root. The stalks that bear the nodding flowers are naked.

Pinguicula Lutea is found from South Carolina to Florida, and thence westward along the Gulf Coast, straying northward. It is one of the earliest of the spring wild flowers in that region, commencing to blossom in February and continuing until April.



— 249 —
 ANDROSTEPHIUM VIOLACEUM.
 (LILY FAMILY.)



— 250 —
 BUTTERWORT.
 PINGUICULA LUTEA.

PLATE 251.

NAKED MITRE WORT. MITELLA NUDA. (SAXIFRAGE FAMILY.)

Appressed-pubescent perennial, spreading by slender rootstocks; leaves long-petioled, rising from the rootstock, round-heart-shaped or reniform, doubly crenate; scapes slender, usually leafless, bearing a slender few-flowered raceme; petals five, greenish, pinnatifid; fruit a one-celled, two-beaked capsule; seeds black, smooth and shining.



FLOWER may appeal to us irresistibly because when we were children we gathered it into posies, or wove it into garlands. From its very lack of either dignity or beauty that might forbid familiar appropriation, we deemed it one of our favorites. It was like a homely, good-natured little sister, who receives all the more love because she challenges no admiration. There are delicate little plants of the woodland which rejoice in a charm refused to the flaunting stout-stemmed flowers of meadows and fields. They may not have showy blossoms, nor bright colors, yet there is an indefinable something, a wild forest grace that they have and that other plants have not. Just as the birds of the tropics are endowed with a rainbow plumage, but lack the daintiness of form and the sweetness of note that enrich the forest songsters of the north, so the plants that grow in the full glare of the summer sun and are painted by him with myriad hues, are less bewitching to those nurtured in woodland shades.

The tiny Naked Mitre Wort, whose small flowers have no color but the green of their stem and leaves, is yet a more interesting plant to a refined taste than the gaudy Sunflower. The slender creeping stems, the delicately shaped leaves, the narrow, few-flowered raceme—there is a real if indescribable attractiveness about them all. The curious little capsule, fancifully compared to the mitre of a bishop, with its two short beaks, is much more interesting than the blossom. It opens wide when ripe to disclose the shining black seeds. *Mitella Nuda* is found all the way from the North Atlantic Coast westward to the Rockies.

PLATE 252.

OXYTROPIS LAMBERTI. (PEA FAMILY.)

Perennial, acaulescent, whole plant sericeous; scapes and leaves rising from a thick, woody rootstock; leaves long-petioled, pinnately compound; leaflets numerous, linear, acute at both ends; flowers numerous in bracted racemes, almost sessile; calyx cylindrical, five-toothed; corolla white or purple.



IN the Western prairies, a very peculiar disease of cattle has long been known as "loco." The affection usually makes its appearance among stock in early spring or in autumn, when there is little nutritious grass for grazing. The disease is undoubtedly caused by feeding on certain plants of the Pea Family, hence known as "loco-weeds" or "crazy weeds." At first these plants are eaten only when no grass is to be had, but when the animal has once acquired a taste for them, no other food has any attraction for it. The disease is a nervous disorder, finally resulting in mania, loss of sight and death from exhaustion. It is difficult to guard against, as the Loco plants are very common, and the malady seems impossible to cure after it has once made headway, for the afflicted animal dies of starvation if it cannot obtain the beloved poison. A parallel here to the deadly grasp of alcohol and opium upon higher creatures!

The reputed Locos are several species of *Astragalus*, notably *Astragalus Mollissimus*, and *Oxytropis Lamberti*. The latter is a common plant of the Western States and Provinces, inhabiting the Great Plains from Canada to Texas and from the Mississippi to the Rockies. It is a showy plant, covered all over with long silky hairs. The flowers are in rather dense clusters, occasionally white, but usually violet or blue.



— 251 —
 NAKED MITREWORT.
 MITELLA NUDA.



— 252 —
 OXYTROPIS LAMBERTI.
 (PEA FAMILY.)

PLATE 253.

DWARF RASPBERRY. RUBUS TRIFLORUS. (ROSE FAMILY.)

Stems ascending, or usually decumbent, from a slender, somewhat woody rootstock; stipules small; leaves long-petioled, pinnately trifoliate, more rarely quinate, leaflets rhombic-ovate, sharply serrate and obscurely lobed; flowers one to three on short glandular peduncles, small; petals five to seven, white; fruit small.

"If I were a poet, my sweetest song
Should have the bouquet of scuppernong,
With a racy smack in every line
From the savage juice of the muscadine.
The russet persimmon, the brown papaw,
The red wild plum and the summer haw,

Service-berries and mandrake fruit,
Sassafras bark and ginseng root
Should make my verse pungent and sweet by turns;
And the odor of grass and the freshness of ferns,
The kernel of nuts and the resins of trees,
The nectar distilled by the wild honey-bees,

Should be thrown in together, to flavor my words
With the zest of the woods and the joy of the birds.
Who sings by note, from the page of a book,
So sweet a tune as the brawl of a brook?
Shall Homer or shall Anacreon
Suggest as much as the wind or the sun?"



AURICE THOMPSON, in these vigorous lines, points to the truth so many young poets are apt to forget—that the best inspiration comes in the home acre, in its every day flowers and fruits, in its sunshine—creator of them all.

Among the many delicious fruits that we owe to the Rose Family, some of the finest are produced by members of the genus *Rubus*—the Raspberries and Blackberries. In this country we have two fine Blackberries, the high Blackberry and the low or Dewberry. Two common Raspberries, a red-fruited one, and a black one, are also native. The showy Purple Mulberry, *Rubus Odoratus*, is a Raspberry, but the fruit is insipid. It is a plant of flowers, rather than of fruit, promising more than it yields.

Rubus Triflorus is usually placed with the Raspberries, though Gray remarks of it—"appears to be more properly a Blackberry." It is a low plant, the stems usually trailing on the ground and rising at the ends. The leaves are of three, or sometimes five, leaflets. The flowers are small, with white petals. The fruit is small, consisting of a few loose grains. In color it is dark red, with a tart but not unpleasant flavor.

The Dwarf Raspberry is a northern plant, ranging from Labrador to the higher parts of New Jersey and westward. It flowers in June.

PLATE 254.

INDIAN PIPE, CORPSE PLANT. MONOTROPA UNIFLORA. (PINE-SAP FAMILY.)

Plant parasitic, fleshy, whitish; stem erect, smooth, bearing numerous small, scale-like leaves and a single large flower at summit; sepals two to five, scale-like; petals usually five, wedge-shaped, enlarged at base; stamens mostly ten, with kidney-shaped anthers; seeds numerous, very small.



HEN Emerson enumerates "quaint pipes" among his "herbs and simples of the wood," he must have the Indian Pipe, *Monotropa Uniflora*, in mind. This is one of the oddest of plants. It has an individuality all its own. Its relative, the Pine-sap, a native of European, as well as of American woods, has far less character.

The Indian Pipe is leafless and has no green color. The stem is clothed with scales, which are all that is left to it of leaves. The whole plant is usually white in color, but is often of a bluish, more rarely of a pinkish hue. It is found in the deep rich woods of latest autumn. The early frosts often overtake it and turn it black like a withered Fungus. Like the Fungi, it feeds on decaying vegetable matter in the soil, its want of green coloring-matter preventing it from taking nourishment from the air. Probably, when quite young, it is a root-parasite.

Growing in clumps in shaded woods, it has a most uncanny look against the black rich soil. There is something ghostly about its unhealthy white that makes the name of Corpse Plant very appropriate. No less to the point is its more common designation, "Indian Pipe." The straight stem with the nodding flower at top imitates very neatly a small tobacco pipe.



— 253 —

DWARF RASPBERRY.

RUBUS TRIFLORUS.

MAY.



— 254 —

INDIAN PIPE, CORPSE PLANT.

MONATROPA UNIFLORA.

JUNE - SEPT.

PLATE 255.

SCENTED WATER-LILY. CASTALIA (NYMPHÆA) ODORATA. (WATER-LILY FAMILY.)

Rootstock large, thick, sparingly branched; leaves long-petioled, orbicular, obtuse at apex, deeply heart-shaped at base with a narrow sinus, thick, often purplish beneath; flowers long-peduncled; sepals four; petals many, white, grading into stamens; stamens many.

"Floating water-lilies, broad and white,
Which lit the oak that overhung the edge
With moonlight beams of their own watery light."—SHELLEY.



QUALITY beautiful is Bryant's picture of these superb flowers:

"To-morrow noon
How proudly will the water-lily ride
The brimming pool, o'erlooking, like a queen,
Her circle of broad leaves."

We could have no more faithful description of the Water-lily at home, her many white petals guarding the golden heart of the flowers, resting lightly on the still water, surrounded by the flat green leaf-pads. This is one flower which we can vaunt as having perfume, while its European sister has none. Castalia Alba, much like our Odorata in other respects, is inodorous. There is a handsome variety of our common white-flowered species that has petals of a delicate bluish-pink or even of a deep rosy red color. A Florida species has bright yellow flowers.

Castalia Odorata is a common plant of North America, especially in its higher latitudes. Southward it seems to disappear in the interior, but is frequent along the coast. The delicate perfume that makes the Water-lily so attractive is lacking in the southern form. The time of flowering is from June to the close of summer. The many-rowed petals unfold one by one as the rising sun reddens the surface of pond or stream, closing as he begins his journey through the western sky to sink to a new day.

PLATE 256.

YELLOW POND-LILY. NYMPHÆA (NUPHAR) ADVENA. (WATER-LILY FAMILY.)

Smooth aquatic; rootstock deep, thickened; leaves thick, usually floating, on long petioles, ovate-oblong, obtuse at apex, deeply heart-shaped at base, margin obscurely dentate; flowers long peduncled; sepals usually six, large, yellow; petals more numerous, small; stamens very numerous; fruit compound, consisting of numerous united carpels.

"Where the dark waters lave,
Where the tall rushes wave,
Safe from rude winds that rave,
Floats the fair lily."—ARLO BATES.



NEAR relative of the beautiful Castalia is the Yellow Pond-lily, Nymphaea. The name Nymphaea is usually applied to the White Water-lily, the yellow being called Nuphar. The name was given the Water-lilies by the Greeks, who appropriately dedicated these aquatic plants to the nymphs of fountain and lake. The Yellow Pond-lily is sometimes called Frog-lily or Splatter-dock, for it has a depraved taste for growing in slimy ponds and sluggish streams. It is altogether a coarser and less handsome flower than its beautiful cousin. As in the White Water-lily, the leaves float on the surface of the water. They are much like those of the Castalia, but are oblong instead of round. They are light and spongy, full of air, well fitted to rest on water. The flower is not handsome. The showiest part is the calyx. This is colored to look like petals. Usually bright yellow in tint, it is sometimes blotched with purple-red.

The Yellow Water-lily is even more common in this country than its aristocratic cousin. It is a very familiar object in pools and bogs, flowering from May until the close of the season.



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SCENTED WATER-LILY.

CASTALIA ODORATA

JULY.



— 256 —

YELLOW POND-LILY.

NYPHÆA ADVENA.

JUNE.



— 257 —

TRUMPET FLOWER.

TECOMA RADICANS.

JULY—AUGUST



— 258 —

SCARLET-FRUITED HAWTHORN.

CRATÆGUS COCCINEA.

MAY.

TRUMPET FLOWER. *TECOMA RADICANS*. (BIGNONIA FAMILY.)

Stem somewhat woody, climbing by rootlets; leaves opposite, pinnately compound; leaflets broadly ovate, petioled, coarsely dentate, acute at apex; flowers in dense terminal corymbs; calyx small, five-toothed; corolla large, funnel-shaped, five-lobed, slightly two-lipped; stamens included; fruit a narrow, two-celled capsule.



IDSUMMER'S approach is heralded by a glorious array of beautiful flowers. Just as a charming song is encored and repeated, so we are favored with an echo of Spring in the blossoms of late June and early July. Then it is that the fragrant Elder spreads its wide, flat clusters of tiny white saucer-shaped flowers in hedges and along brooks. Then the Wild-roses, delicate Eglantine and showy Carolina Rose, and the glorious climbing Prairie Rose, make glad the heart with their dainty five-petalled blossoms. Then the wild Morning-glory decks barren fields with her tribute of white, purple-hearted chalices, fading all too soon.

"White they with grief that their short day is done."

Then the superb Trumpet Creeper, undisputed queen among our native climbers, hangs her great festoons of scarlet trumpets from trees and fence-posts.

Few plants that grow so far northward suggest more vividly the luxuriant vegetation of the tropics. This is not strange, as the Trumpet Creeper belongs to a family almost exclusively tropical. The handsome Catalpa and the beautiful Cross Vine of the South, *Bignonia Capreolata*, are among the North American plants of the *Bignonia* Family that have emigrated farthest from their home near the equator.

Tecoma Radicans is found from Pennsylvania, straying northward and south, to Florida and Texas. It is much more common in the valleys of the Mississippi and its tributaries than in the East.

SCARLET-FRUITED HAWTHORN. *CRATÆGUS COCCINEA*. (ROSE FAMILY.)

Much branched shrub with red-brown bark; stems furnished with stout, straight or slightly recurved thorns; leaves long petioled, broadly ovate to almost orbicular, truncate or subcordate at base, sharply doubly-serrate; flowers numerous in corymbs terminating the twigs; petals five, semi-orbicular, white; fruit a scarlet, few-seeded drupe.

"The hawthorn I will pu', wi' its locks o' siller grey,
Where, like an aged man, it stands at break o' day,
But the songster's nest within the bush I winna tak' away;
And a' to be a posie to my ain dear May."—BURNS.



THESE pretty lines of Burns are but a few among the hundreds sung in praise of the English Hawthorn—the "May" that decks the hedges of the old island,

"White with blossoms honey-sweet,"

in the bright, joyous English spring-time. All the poets have united to sing the praises of the Hawthorn, even as they have joined in celebrating the beauties of the Rose. It has come to be the emblem of "hope," just as the Puritan Fathers took the *Epigæa*, upon which they bestowed the familiar name of "Mayflower," as the symbol of promise.

The English Hawthorn is sparingly, very sparingly, naturalized in some of our Eastern districts, where it was first planted in hedge-rows. We have several native species of *Cratægus*, none as handsome, nor as well known, as the European *Cratægus Oxyacantha*. Of our native species, the Scarlet-fruited Hawthorn, *Cratægus Coccinea*, is the most familiar. It is a low, straggling shrub, with large thorns, clustered white flowers and bright red berries. The thorns on all this tribe of plants are stunted and hardened branches; they serve to discourage browsing on the part of hungry cattle, and aptly illustrate how well Nature's works can be contrived "a double debt to pay."



— 259 —

YELLOW-RATTLE.
RHINANTHUS CRISTA-GALLI.



— 260 —

GAURA LINDHEIMERI.
(EVENING PRIMROSE FAMILY.)

AUGUST

PLATE 259.

YELLOW RATTLE. RHINANTHUS CRISTA-GALLI. (FIGWORT FAMILY.)

Annual; stem erect, branched above, four-angled, smooth or slightly pubescent; leaves oblong-lanceolate, sharply serrate, opposite, sessile, veiny; inflorescence a one-sided, leafy spike; calyx four-toothed, membranaceous, greatly enlarged after flowering; corolla two-lipped, upper lip galeate; capsule flattened, enclosed in the fruiting calyx; seeds winged.



ONE of the root-parasitic group of the Figwort Family is the Yellow Rattle, or Common Rattle, a native of Europe and Russian Asia, and also of North America. *Rhinanthus Crista-Galli* is a much rarer plant in America than in the Old World, occurring sparingly along the coast and in the mountains of Northern New England and Eastern Canada, thence extending to the north shore of Lake Superior and northwestward. This geographic distribution of the *Rhinanthus* is good evidence of its being truly native, although it may have been introduced at some points along the coast. In Great Britain and other European countries, where it is much more common than here, it often causes great loss by its habit of preying on other plants.

It is an erect plant, with simple stem, opposite leaves, and oddly irregular flowers in a one-sided spike. It is not unlike the Red Rattle, *Pedicularis Palustris*, in general appearance. The name *Rhinanthus* means "Nose-flower," because the upper lip of the corolla of some species once placed in this genus is beaked. The specific name, "*Crista-galli*," means "Cock's-comb," perhaps in reference to the shape of the curiously inflated fruiting calyx. The name Yellow Rattle, like that of the Red Rattle, is due to the noise of the ripe seeds in the pod.

PLATE 260.

GAURA LINDHEIMERI. (EVENING-PRIMROSE FAMILY.)

Perennial; stem hirsute, erect, with erect branches; leaves alternate, lowest lyrate-pinnatifid, uppermost almost entire; flowers in bracted, terminal racemes; calyx-tube much prolonged beyond the sessile ovary, four-lobed; petals four, short-clawed, placed on the upper side of the flower; stamens eight; ovary almost smooth, four-angled, the faces winged.

"I feel a newer life in every gale;
The winds that fan the flowers,
And with their welcome breathings fill the sail,
Tell of serene hours—
Of hours that glide unfelt away
Beneath the sky of May.

"The spirit of the gentle south-wind calls
From his blue throne of air,
And where his whispering voice in music falls,
Beauty is budding there;
The bright ones of the valley break
Their slumbers, and awake."—J. G. PERCIVAL.



THIS handsome plant is a native of the prairies of Texas, that paradise of beautiful flowers. It was first found by one of the most indefatigable of the collectors who early traveled through the Great West and labored to bring its flora to knowledge. This was F. Lindheimer, who collected chiefly in the Lone Star State. His spoils were worked up by Dr. Engelmann and Dr. Gray, and the result was published under the name of "*Plantæ Lindheimerianæ*." The species of *Gaura* that bears Lindheimer's name was first found by him near Houston, Texas. It is a tall plant, sometimes growing to the height of six feet. The odd, one-sided flowers open successively in April and May. They are large for the genus, the petals pure white at first, but becoming pink as they fade, as do so many white and yellow-flowered plants of this family.

There are quite a number of species of *Gaura* in North America, all of them with pretty, slightly irregular blossoms. *Gaura Biennis*, the most common species east of the Mississippi, has pink flowers. *Gaura Coccinea*, a native of the Western prairies and mountains, is remarkable for the color of the small blossoms. Rose-colored at first, they deepen to a vivid scarlet with age.



— 261 —

BEECH DROPS.
EPIPHEGUS VIRGINIANA.



— 262 —

BROAD-LEAVED GOLDEN-ROD.
SOLIDAGO FLEXICAULUS.

PLATE 261.

BEECH-DROPS. EPIPHEGUS VIRGINIANA. (BROOM-RAPE FAMILY.)

Whole plant brownish-purple; roots fibrous, thickened, forming a tangled ball; stems erect, much branched, brittle, bearing numerous small scale-like leaves; flowers in the axils of the leaves, forming slender racemes; upper flowers sterile, showy, the lower, fertile, never opening; corolla of sterile flowers tubular, four-toothed.



MEMBER of the Broom-rape Family, closely allied to the small one-flowered Cancer-root, is the Beech-drops, Epiphegus. While the Aphyllon attaches its roots to those of Asters and Golden-rods, Epiphegus aims at nobler prey, drawing its sustenance from the root fibres of the stately Beech. In late summer and autumn—September and October are its favorite months—this quaint parasite may be found at the foot of every Beech-tree, enjoying the hospitable shade while it cunningly robs its host. A small plant it is. The stems are rather brittle, much branched. The color of the whole plant is a dull purple-brown, so that the living specimens are hardly to be distinguished, at first glance, from the dead plants usually found beside them. The flowers at the summit of the stem are rather large and showy, dull crimson and white in color. Like the gay, bright-colored flowers of the Jewel-weed, they rarely produce seed. That is left to the inconspicuous Cinderellas—to the bud-like blossoms lower on the stem—not permitted to win admiration in upper air. These fertile blossoms do not open at all, fertilization taking place in the bud.

Epiphegus Virginiana is a not uncommon plant in Eastern North America. It is found in Canada, and thence south to Florida and westward to Wisconsin and Arkansas.

PLATE 262.

BROAD-LEAVED GOLDEN-ROD, SOLIDAGO FLEXICAULIS (LATIFOLIA). (SUNFLOWER FAMILY.)

Plant smooth or slightly pubescent; stem erect, one to four feet high, branching toward the summit, flexuose; leaves alternate on margined petioles; ovate, acuminate at both ends, coarsely doubly-serrate; heads in axillary clusters, forming a leafy terminal panicle, disk-flowers few, ray-flowers three or four.

"Grows a weed

More richly here beside our mellow seas
That is the autumn's harbinger and pride.
When fades the cardinal-flower, whose red-heart bloom
Glows like a living coal upon the green
Of the midsummer meadows, then how bright,
How deepening bright like mounting flame doth burn
The Golden-rod upon a thousand hills.
This is the Autumn's flower, and to my soul

A token fresh of beauty and of life,
And life's supreme delight."—RICHARD WATSON GILDER.

"And the Golden-rod lights slowly
Its torch for the Autumn blaze."—CELIA THAXTER.

"Along the roadside, like the flowers of gold
That tawny Incas for their gardens wrought,
Heavy with sunshine droops the Golden-rod."—WHITTIER.



E, in this country, have a great love for the Golden-rods. Although there are a few species in Europe and in other parts of the world, the genus Solidago reaches its highest development in North America. The Golden-rods are among the most familiar wild flowers of this teeming continent. Poets on the western side of the Atlantic, ceasing to live on the memory of Poppy and Daisy and Hawthorn, have begun to realize that America has a few plants of her own and sing with one accord the beauties of these glorious autumn flowers.

Not so showy as the common Solidago Canadensis of fields and roadsides, but more delicately handsome, are several woodland species of the Eastern States and Canada. Easily chief among these is the Broad-leaved Golden-rod. A denizen of rich hillside woods, mostly along water courses, this fine Solidago is abundant northward, but in the South is confined to the neighborhood of the mountains. It blossoms in September and October.



— 263 —

CYRILLA RACEMIFLORA.
(CYRILLA FAMILY.)



— 264 —

COMMON PASSION FLOWER.
PASSIFLORA INCARNATA.

PLATE 263.

CYRILLA RACEMIFLORA. (CYRILLA FAMILY.)

Shrub or small tree with grayish bark; leaves clustered at the ends of the branchlets, obovate or oblanceolate, entire, smooth, thick, veiny; flowers small in long slender racemes clustered at the base of the shoots of the season; petals five, spreading, white; fruit a two-celled drupe.

"A thousand flowers,
By the roadside and borders of the swamp,
Nod gaily to each other; glossy leaves
Are twinkling in the sun, as if the dew
Were on them yet, and silver waters break
Into small waves, and sparkle as they come."—BRYANT.

THE shallow Sphagnum swamps that green the pine-barren region along the Atlantic and the Gulf in the Southeastern States, are like oases in the desert. Wherever there is a slight hollow below the monotonous level of this region, moisture gathers and a veritable flower-garden springs up. There are not a few beautiful flowers in the dry soil of the barrens. But in the swamps, the profusion of vegetable wealth rivals that of the tropics. Not to speak of Orchids, Pitcher-plants and Polygalas, there is a great variety of handsome flowering shrubs. The Viscid Azalea, with its masses of pink-white, fragrant flowers, the brilliant Pinckneya, with its showy floral leaves, the delicate drooping white of the Fringe-tree or Old Man's Beard, the handsome foliage and graceful rose-colored clusters of the Buckwheat Tree, Cliftonia—all flourish here. Closely allied to the Buckwheat Tree is Cyrilla, a shrub or small tree common along the banks of streams, and at the edge of pine-barren ponds, from Virginia to Florida and westward along the Gulf. This plant is elegantly beautiful. The foliage is dark green, the leaves thick and with a rich glossiness on the upper surface. The small white flowers are clustered in slender, rigid racemes at the base of the young twigs of the season. Instead of gracefully drooping, they stand boldly out, stiff and unbending, which gives an odd look to the plant in flower or fruit.

PLATE 264.

COMMON PASSION-FLOWER. PASSIFLORA INCARNATA. (PASSION-FLOWER FAMILY.)

Pubescent or glabrate; stem flexuose, reclining on the ground or climbing by long, stout, axillary tendrils; leaves alternate, palmately three-lobed, lobes rhombic-ovate, serrate, acute; flowers large, unguiculate; calyx five-lobed, united below, with a crown of purple fringes on the throat; petals five, white; filaments united into a tube enclosing the stalk of the ovary.

"Art thou a type of beauty, or of power,
Of sweet enjoyment, or disastrous sin?
For each thy name denoteth, Passion-flower!
Oh no! thy pure corolla's depth within
We trace a holier symbol; yea, a sign
'Twixt God and man; a record of that hour
When the expiatory act divine

Cancelled that curse which was our mortal dower.
It is the Cross! Never hath Psalmist's tongue
Fittier of hope to human frailty sung
Than this mute teacher in a flower's breast,
A star of guidance the wild woods among,
A page with more than lettered love imprest,
A beacon to the havens of the blest."—SIR AUBREY DE VERE.



King Henry IV, contemplating a crusade, speaks, through the lips of Shakespeare, of

"Those blessed feet,
Which fourteen hundred years ago were nail'd
For our advantage on the bitter cross."

The thought of the monarch returns in the singular outlines of the Passion-flower, its stamens, pistils and crown of fringe, have for centuries recalled the cross, the nails, the crown of thorns of Calvary. Hence the Italian name, "flor della passione." Linnaeus transformed this into Passiflora, "flower of the passion." Mostly natives of America, especially South America, a few species occur in Southern Asia and in Australia. They were early introduced into Europe, especially Passiflora Carulea, the most common species in cultivation.

Of the several species of Passion-flower that occur in North America, the beautiful Passiflora Incarnata is the best known. The fruit is a large berry that turns yellow when mature. The white pulp is rather sweetish, but of a flavor not relished by most people. It is sometimes eaten in the South, where it is known as "Maypops."

PLATE 265.

AMERICAN IPECAC. PORTERANTHUS (GILLÉNIA) STIPULACEUS. (ROSE FAMILY.)

Stem erect, slightly pubescent, branching at summit, very leafy; leaves alternate, on very short petioles, trifoliate or deeply three-lobed, stipules large, clasping, deeply incised; leaflets lanceolate-oblong, sharply serrate, pale and pubescent beneath; flowers in a corymbose inflorescence; petals five, white or rose-color.

"When spring came on with bud and bell,
Among these rocks did I
Before you hang my wreaths to tell
That gentle days were nigh!
And in the sultry summer hours
I sheltered you with leaves and flowers."—WORDSWORTH.



HUNDRED to the many plants of surpassing beauty that belong to the Rose Family, none are handsomer than those of the Spiræa tribe. The Spiræas themselves, Meadow-sweet and Hardhack and the lovely May-wreath of our gardens, are of high distinction among flowers. The Nine-bark, an elegant little shrub of our river-cliffs, with dark green foliage and clusters of white flowers, followed by bunches of curious purplish pods, sustains the family reputation.

Closely allied to Spiræa is the genus Porteranthus, of which there are two very pretty species in Eastern North America. One, Porteranthus Trifolius, grows in woods along the Appalachian mountains, and westward to Missouri. The other, the American Ipecac of the "herb-doctors," is found in Western New York, in Ontario, and thence southwestward to Alabama and Louisiana, and as far west as Kansas, flowering in early summer. It is a taller and stricter plant than the other, with leaves of a lighter green and pretty white flowers, the petals usually flushed with pink on the outer surface. It prefers drier and more open woods than those inhabited by its sister species.

PLATE 266.

LUNGWORT, VIRGINIA COWSLIP. MERTENSIA VIRGINICA. (BORAGE FAMILY.)

Whole plant smooth, slightly glaucous; stem simple, erect, leafy; leaves alternate, the lower long-petioled, oblong or obovate, obtuse at apex, radical six or eight inches long; flowers in corymbs forming a terminal panicle; calyx small, five-parted; corolla trumpet-shaped, about one inch in length.

"Blue! 'Tis the life of heaven—the domain
Of Cynthia,—the wide palace of the sun—
The tent of Hesperus, and all his train—
The bosom of clouds, gold, grey, and dun.
Blue! 'Tis the life of waters—ocean
And all its vassal streams: pools numberless
May rage, and foam, and fret, but never can—

Subside, if not to dark-blue nativeness,
Blue! gentle cousin of the forest green,
Married to green in all the sweetest flowers—
Forget-me-not, the blue-bell, and that queen
Of secrecy, the violet—what strange powers
Hast thou, as a mere shadow! But how great,
When in an Eye thou art alive with fate!"—JOHN KEATS.



LUNGWORT and Virginia Cowslip are among the popular names borne in the books by this lovely plant. A third name is much more commonly applied to it, especially in the Ohio Valley and in the South—"Bluebells." A number of American plants have usurped this English name of the European Scilla Nutans (Hyacinthus Non-scriptus), but none is more worthy of the pretty title than this Mertensia. It has been called "Virginia Cowslip," doubtless because of the leaves, which are somewhat like those of the true Cowslip.

There is no plant more elegant than the Mertensia Virginica. Belonging to a family of coarse, rough-hairy weed-like plants, it would be considered one of the handsomest of its tribe if it belonged to the Primroses or the Gentians. Perfectly smooth, with leaves of a rich, sappy green, the vegetative part of the plant is a meet setting for the superb flowers. These are trumpet-shaped, with a somewhat flaring border, not more than an inch long. Although usually described as blue in color, they are often flesh-pink at first, changing to a vivid blue. Often the two colors with intermediate purples may be seen in the same cluster. Mertensia Virginica extends from the Valley of the St. Lawrence to Minnesota and South Carolina.



— 265 —

AMERICAN IPECAC.



— 266 —

LUNGWORT, VIRGINIA COWSLIP.

PLATE 267.

TALL BLACKBERRY. *RUBUS VILLOSUS*. (ROSE FAMILY.)

Shrub; stems erect or reclining, bearing strong, more or less recurved prickles; leaves glandular, pubescent below, pinnately trifoliate or palmately quinate, leaflets ovate, acute at apex, sharply double-serrate; flowers long-pedicelled in bracted racemes; petals five, obovate, white; receptacle juicy when mature, bearing several drupe-like achenes, partly united into an oblong black fruit.

"Still sits the school-house by the road,
A ragged beggar sunning:
Around it still the Sumachs grow,
And Blackberry vines are running."—WHITTIER.



THE Quaker Poet's accurate knowledge of plant-life is not wanting here. How largely do these two shrubs, the Sumach and the Blackberry, contribute to the beauty of our waysides. The Blackberry is always lovely. In early summer, with snow-white or pink-flushed blossoms. Later, in the glory of bright red and then rich black fruit. In autumn, the warm purples and bronzes of the fading leaves are fit companions to the scarlet and vermilion of the Sumach's leaves and berries.

In midsummer what treasures are bestowed on those who go berrying in fence-rows and old fields, where the prickly-armed stems of the Blackberry bend low beneath their weight of luscious fruit! When Strawberries and Raspberries are gone, when apples and peaches and grapes have not yet ripened, then it is Blackberry time.

Besides the common species, there are other edible Blackberries in North America. The Dewberry, low-trailing in sandy fields; the Mountain Blackberry, much like the Tall Blackberry, but with stems almost unarmed and with sweeter fruit. In the pine-barren region of the Southern States the Sand Blackberry is a common species.

PLATE 268.

WOOD NETTLE. *LAPORTEA CANADENSIS*. (NETTLE FAMILY.)

Perennial, stem erect, rather weak, armed with stinging hairs; leaves alternate on long, slender, weak petioles, ovate, acuminate at apex, sharply serrate, pubescent beneath, conspicuously veined; flowers monoecious in open cymes, the fertile terminal or in upper leaf-axils, sterile in lower axils.



PLANTS, like animals, have waste material that is produced in their life-processes. This is either accumulated where it will not be in the way—stored away like old furniture and clothes in a garret—or it is excreted. Most plants that contain alkaloids such as nicotin, cinchonin and strychnin, take the former method of disposing of their ashes and cinders. These often highly poisonous substances are merely the products of combustion in the plant—the indigestible part of its food. In other cases the waste matter is carried to the surface and exudes from glands or other outlets. Nature here, as elsewhere, gives the inventor a hint of value. What at first were waste products have been converted to utmost utility. Exudations sought as food by visiting insects have become the means of perpetuating the race of the plant. And when, as in the case of the Nettles, the excretions are hurtful to insect, beast, and man, they are useful still—they serve as means of stout defence. To recall a word often in the mouth of John Bunyan, how full is nature of "by-ends"! Seldom does she fail to deal a blow with the hilt as well as the edge of her sword.

Not quite so venomous as some of the true Nettles, yet by no means inoffensive, is the Wood Nettle, *Laportea*. This is a common weed in rich shaded soil, with large, thin, dark green leaves. It blossoms in August and September.



— 267 —
TALL BLACKBERRY.
RUBUS VILLOSUS.



— 268 —
WOOD NETTLE.
LAPORTEA CANADENSIS

PLATE 269.

WILD CRANESBILL. GERANIUM MACULATUM. (GERANIUM FAMILY.)

Stem erect, from a short, thick, reddish rootstock, sparingly hirsute; leaves orbicular or even broader in outline, five-parted, divisions lobed and toothed, the lower on long petioles, the upper on short ones; flowers long-peduncled, rather large; calyx five-cleft; petals five.

"And genteel Geranium,
With a leaf for all who come."



EIGHT HUNT, the smooth poet of the town, when he thus wrote doubtless had in mind one of the Pelargoniums that are universally cultivated and that look as if they could have no place in any untamed landscape. Even he, the most artificial of bards, could not describe a wild species as a "genteel Geranium." Certainly his lines tell nothing of the sylvan grace and beauty of our Wild Cranesbill.

We have no wild flower that is more closely identified with the spirit of our forests than this. Wherever it grows abundantly it is an essential feature in the May woods. Unlike its less delicate cousins from South Africa it languishes and seems out of place in cultivation. Its daintily cut leaves and pretty rose-purple flowers lose half their charm when removed from their native setting of virgin soil and forest shade. As Emerson says:

"I thought the sparrow's note from heaven,
Singing at dawn on the alder bough;
I brought him home, in his nest, at even;

He sings the song, but it cheers not now,
For I did not bring home the river and sky;
He sang to my ear—they sang to my eye."

The Wild Cranesbill is native almost everywhere in Eastern North America. Southward it leaves the hot sandy coastal plain and seeks the cool, rich mountain woods. It begins to blossom in the South in April, continuing in flower until July in the North. It is at its prime in May. The leaves are usually blotched with a lighter shade of green, hence the name "maculatum."

PLATE 270.

SMALL EVENING PRIMROSE. OENOTHERA PUMILA. (EVENING-PRIMROSE FAMILY.)

Biennial; stem erect, a foot or two high, simple or sparingly branched, short-pubescent; leaves entire, the lower spatulate and tapering into a petiole, the upper oblanceolate to linear and nearly sessile; flowers in leafy terminal spike; petals four, bright yellow; capsule club-shaped, four-angled.

"Not all the sensuousness of melting sound
Can move our being as sweet fragrances
Steal with insinuation delicate
Into the mind. The lute's low melody
Plaintive as love; the organ's reverent tone;
The horn's inspiring blast; the wild appeal

Of hauboy's sentiment of all life's deep pain;
The eager clamor of the drum's fierce beat;
Touch, thrill, or rouse, yet leave us still ourselves.

All memories, or sad or piercing sweet,
Come on the wings of fragrance; all desire

Wakes at its bidding with resistless stress;
Old dreams are in its keeping; youth and love
Wait on its will, and not the thoughts which serve
Their sweet behests move with more subtle law,
Swifter or more mysteriously."

—ARLO BATES.



BESIDES the species of *Oenothera* that open their pale yellow blossoms when the staring sun has set, there are less diffident species that do not shun the solar beam. While the nocturnal *Oenotheras* have pale blossoms that are usually sweetly fragrant,

"Voiceless, yet not unbreathing,"

those that open in the daytime have bright yellow flowers, little if at all odoriferous. Their brilliancy of hue renders fragrance unnecessary for insect-invitations. These day-flowering species do not merit the name of "Evening Primrose." One of the commonest kinds, *Oenothera fruticosa*, is known by the name of "Sundrops," which indicates its true habit. One who has seen a field in early summer spangled with the bright yellow blossoms of this plant, will acknowledge that the name is as appropriate

as it is pretty.

A species closely allied to the Sundrops, differing in its more slender and less branching habit and in being not so hairy, is *Oenothera pumila*. This pretty little plant loves dry sandy open soil, where it may revel in the sunlight. It is found from Nova Scotia to New Jersey, and westward to Kansas. The fruit is an odd capsule, club-shaped and four-angled, the angles with a narrow corky wing.



— 269 —

WILD CRANESBILL.
GERANIUM MACULATUM.



— 270 —

SMALL EVENING PRIMROSE.
OENOTHERA PUMILA.

PLATE 271.

SPINY SOW THISTLE. *SONCHUS ASPER.* (SUNFLOWER FAMILY.)

Stem erect from an annual root, glaucous, channeled; leaves alternate, oblong-obovate in outline, pinnatifid or undivided, irregularly dentate, clasping by an auriculate base, smooth; heads several in a terminal corymb, many flowered; involucre imbricated; flowers yellow; pappus of soft white bristles.



WITH many another aggressive weed of the same family, Europe has given us the Sow-thistle. This plant is often seen in waste-ground and about dwellings near the seaboard, and is becoming frequent in the West. The Spiny Sow-thistle, *Sonchus Asper*, may be distinguished from the common Sow-thistle, which it much resembles, by the more rigid spiny tips on the teeth of its leaves. It is a coarse plant and unattractive. External beauty is quite lacking to it. The stem is filled with a milky juice, like the Dandelion, the Chicory, and the other members of this tribe of the Sunflowers. Indeed, this character, with that of the flowers being all strap-shaped, would make it seem that those botanists are in the right who regard the Chicory Tribe as a family distinct from the Sunflower.

The heads of the Spiny Sow-thistle are rather small, with pale yellow flowers. These, as in the Hawkweeds, Wild Lettuce and others of the family, open in the early morning, closing in the strong light of mid-day.

Another species, *Sonchus Arvensis*, the Field Sow-thistle, has large heads of handsome orange-yellow flowers. It is a not uncommon plant along hedges and roadsides.

PLATE 272.

EPILOBIUM OBCORDATUM. (EVENING-PRIMROSE FAMILY.)

Low, perennial; rootstock rather thick, woody, sending out scaly stolons and erect, leafy stems; leaves opposite on short petioles, ovate-oblong, obtuse, obscurely dentate, glaucous; flowers few on rather long, slender axillary peduncles; petals large, obcordate; pods club-shaped, somewhat longer than the peduncles; seeds covered with minute projections, coma whitish.

"Like as a child, when fighting sounds molest,
Clings close and closer to the mother's breast,
So the loud torrent, and the whirlwind's roar,
But bind it to its native mountains more."



BECAUSE many of the *Epilobiums* grow on high mountain peaks, they are low and stunted in their growth. Lack of the rich soil from which plants of a lower altitude construct their tall stems and broad leaves, as well as the necessity of hugging the ground in order to escape the buffetings of the rude mountain wind, prevents them from attaining any great stature. Many genera which are represented at low elevations by tall, stout, juicy-stemmed and broad-leaved species dwindle at Alpine heights into small, half-starved, compact plants, usually growing in close tufts. Albeit, these high mountain plants, having little opportunity to develop up-shooting stems and spreading foliage, usually produce large and showy flowers, so as to attract insects from more genial territory.

While the *Potentillas* of low-country meadows are usually inconspicuous in flowering but thrifty in stem and leafage, the Alpine species star both rock and turf with their bright yellow flower-cups. *Saxifraga Pennsylvanica* of meadows at low elevations has large leaves and sappy stalk, but its flowers are small and green. *Saxifraga Geum* and *Saxifraga Oppositifolia*, Arctic and Alpine plants, are of dwarf habit but have large and brilliant flowers. The *Epilobiums* of comparatively low altitudes with erect, leafy stems, such as *Epilobium Augustifolium* and *Epilobium Latifolium*, give place on the mountain heights to such low, small-leaved species as *Epilobium Obcordatum*.



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SPINY SOW THISTLE.

SONCHUS ASPER.

JULY—AUGUST.



— 272 —

EPILOBIUM OBCORDATUM.

(EVENING PRIMROSE FAMILY.)

JULY—AUGUST.



— 273 —

STAG-HORN SUMACH.

RHUS TYPHINA.



— 274 —

OAK-LEAVED HYDRANGEA.

HYDRANGEA QUERCIFOLIA.

PLATE 273.

STAG-HORN SUMACH. RHUS TYPHINA. (CASHEW FAMILY.)

Shrub, sometimes twenty or thirty feet high; young branches and petioles tomentose-hisute; leaves pinnate, of numerous leaflets, leaflets oblong-lanceolate, acuminate at apex, sharply serrate, glaucous beneath; flowers small, greenish-yellow, in a dense, thyrsoid panicle; sepals, petals and stamens five; fruit a small, round drupe, bristly with red hairs.

"What is there sadd'ning in the autumn leaves?
Have they that 'green and yellow melancholy'
That the sweet poet spake of?—Had he seen
Our variegated woods, when first the frost
Turns into beauty all October's wealth—
When the dread fever quits us—when the storms

Of the wild Equinox, with all its wet,
Has left the land as the first deluge left it,
With a bright bow of many colors hung
Upon the forest tops—he had not sighed.
The moon stays longest for the hunter now:
The trees cast down their foliage, and the blithe

And busy squirrel hoards his winter store:
While man enjoys the breeze that sweeps along
The bright blue sky above him, and that bends
Magnificently all the forest's pride,
Or whispers through the evergreens and asks,
'What is there sadd'ning in the autumn leaves?'"

BRAINARD.



HE Sumachs are always handsome plants. Even the common Poison Ivy is a pretty climber with its lush green foliage and bunches of white waxy berries. Our other poisonous species, the Swamp Dogwood, *Rhus Veinix*, is a beautiful little tree, especially when its foliage has assumed the bright tints of autumn. The Smoke Tree, *Rhus Cotinus*, so ornamental in fruit, is often seen in parks and on lawns. It is taken as the emblem of "intellectual excellence."

The Stag-horn Sumach is one of the most common American species, especially northward. It is a tall shrub, usually ten or fifteen feet high, but sometimes reaching the height of thirty feet. The stem is covered with fine rusty hair. The leaves are long, made up of many leaflets which are whitened beneath. The flowers, like those of all the Sumachs, are small greenish-yellow in color. It is the fruit, however, that attracts the eye. This is a small berry-like drupe, bright red in color, covered all over with bristly red hairs. The grape-like cluster of these red fruits is very showy in early autumn. With the vivid hues assumed by the foliage, the Stag-horn Sumach is a brilliant bit of color in the fall landscape.

PLATE 274.

OAK-LEAVED HYDRANGEA. HYDRANGEA QUERCIFOLIA. (SAXIFRAGE FAMILY.)

Shrub, three to six feet high; stems slender, branching, bark gray; leaves orbicular or broadly ovate-oblong in outline, deeply three-lobed, the lobes again two or three-lobed, acute, serrate, tomentose beneath, especially when young; flowers in an oblong panicle; corollas of fertile flowers small, of the neutral ones much larger.



OST of the beautiful Hydrangeas that are so much prized in cultivation are forms of an Eastern Asiatic species, *Hydrangea Hortensis*—the "Hydrangea of gardeners." This plant with its handsome varieties is a good illustration of the effects of cultivation. Just as the domestication of animals tends to make them degenerate in many respects, so cultivated plants are apt to lose some of their distinctive vigor. When the end of the gardener's art is the "improvement" of the blossoms, a common result is the loss of fertility. The flowers become larger, showier, handsomer if you will, but the ability to produce seed is diminished or destroyed; there is just so much vitality in a plant, if exhausted in one particular task, other tasks must remain undone. The effect of the culture of the *Hydrangea* has been to turn the original small corolla into a large neutral blossom without stamens or pistils. As far as there may be beauty in perversion, these massive clusters of pink, blue or greenish-white flowers are very beautiful.

Even native *Hydrangeas* usually have a few large sterile flowers on the circumference of the cluster of small perfect ones, doubtless as a lure to insects. These are especially well-developed in the superb *Hydrangea Quercifolia*, often seen in gardens. It is a native of river banks in the Gulf States from Florida to Louisiana.

Hydrangea is from two Greek words signifying "water" and "vase," referring to the shape of its capsules.



— 275 —

CRANE-FLY ORCHIS.
TIPULARIA UNIFOLIA (DISCOLOR).



— 276 —

DISPORUM MACULATUM.
(LILY FAMILY.)

PLATE 275.

CRANE-FLY ORCHIS. TIPULARIA UNIFOLIA (DISCOLOR). (ORCHIS FAMILY.)

Stem smooth, brownish, erect from a large corm; leafless or with a few scales near the base; leaf solitary, radical, rather long-petioled, ovate, many-nerved; inflorescence a long terminal raceme; flowers small, brownish; perianth segments linear, spreading; lip bearing a slender spur, more than twice as long as the flower.

"By fate, not option, frugal Nature gave
One scent to hyson and to wall-flower,
One sound to pine-groves and to water-falls,
One aspect to the desert and the lake.
It was her stern necessity; all things

Are of one pattern made; bird, beast, and flower,
Song, picture, form, space, thought, and character
Deceive us, seeming to be many things,
And are but one."

EMERSON.



MIMICRY by Orchids of insects of the most widely different families has been remarked since these plants were first studied. Whether these wonderful resemblances are always purely accidental, is an unanswered question. Is it not at least possible that the flowers of different plants may attract insects by assuming the hues and forms by means of which one individual insect of a species is enabled to recognize its mates? The narrow strap-shaped sepals are often strikingly like the antennæ of insects, while the broader petals or lip answer for wings.

Tipularia Unifolia is one of the best specimens of this mimicry of insects on the part of Orchid-blossoms. The long spur and narrow sepals make a fair imitation of the body and wings of a Crane-fly. It is to this resemblance that the plant owes both its English and Latin names. Tipularia is from Tipula, the Crane-fly. In this case the imitation is doubtless accidental, as no one attributes to the Crane-fly or any allied insect the cross-fertilization of Tipularia.

The Crane-fly Orchis is one of the most difficult to find of our Orchids. It grows in deep rich woods, and its dead brown color is so similar to that of the withered leaves with which the ground is strewn, that its detection is a task for the sharpest eyes.

PLATE 276.

DISPORUM MACULATUM. (LILY FAMILY.)

Herbaceous perennial; roots clustered, fibrous, from a knotty rootstock; stem erect, forking; leaves alternate, clasping, ovate, acuminate, downy pubescent, especially when young, veiny; flowers one to three on slender, drooping terminal peduncles; perianth, divisions six, white, spotted with purple; fruit an ovoid, several seeded, red berry.



POTTED flowers seem to be a family trait of the Lilies. The marvelous markings of the petals of the species of Calochortus, those beautiful herbs of which the Mariposa Lily is the best known, are extreme developments of this common tendency. The purple or brown dots on the flower-leaves of most Lilies, and the less distinct bars and checkerings of the Fritillarias, are more familiar instances.

None of the Lilies have more beautifully marked blossoms than the little known Disporum Maculatum, a native of wooded bluffs along the rivers in the Cumberland and Alleghany mountains, and ranging northward. An elegant plant is this Disporum, well worthy a place in every garden. The leafage is of a bright tender green. The blossoms, very broad and open bell-shaped in form, droop from their slender stalks at the summit of the stems. The six petals, wide apart and tapering into slender claws, are almost pure white, thick dotted with crimson-purple. When these have fallen the plant puts on new beauty, in late summer; having won the admiration of insects it now seeks that of the birds. The fruit is more showy than the blossom—a small egg-shaped berry, bright scarlet in color. It blossoms, to quote Lowell:

"When oaken woods with buds are pink,
And new-come birds each morning sing,
When fickle May on Summer's brink
Pauses and knows not which to fling,
Whether fresh bud and bloom again,
Or hoar-frost silvering hill and plain.

When from the honeysuckle gray
The oriole with experienced quest
Twitches the fibrous bark away,
The cordage of his hammock nest,
Cheering his labor with a note
Rich as the orange of his throat."



— 277 —

FALSE IPECAC.

RICHARDSONIA SCABRA.



— 278 —

BLADDERWORT.

UTRICULARIA INFLATA.

PLATE 277.

FALSE IPECAC. RICHARDSONIA SCABRA. (MADDER FAMILY.)

Annual, hirsute pubescent; stem decumbent or ascending; dichotomously branched; leaves ovate or obovate, acute, short-petioled, uppermost pairs united at base, into an involucre about the flower-clusters; flowers densely glomerate, calyx four to seven-lobed; corolla funnel-formed, three to six-lobed, white or pinkish, fruit two or three nutlets.



SOME families of plants are easily recognized as families—all the members resemble each other obviously. The Cress Family, for instance, is plainly of one mold and pattern. So is the Umbellifer Family. The Madder Family on the other hand, is made up of several tribes that are apparently more distinct than some families. Yet a study of the parts of the flowers bring out their relationship clearly. No one would suppose that the climber with showy scarlet and yellow flowers familiar in cultivation, the Manettia, is a relative of the homely, weak-stemmed Bedstraws, or of the noble Cinchonas. In tracing back the tips of branches to the trunk of the tree of life, the botanist often finds a flower's "long lost brother" where the ordinary observer would never suspect even remote kinship.

Belonging to the tribe of the Bedstraws, is the rather homely and weed-like Richardsonia, sometimes known as False Ipecac. This is a rough little plant, covered all over with bristly hairs. The tiny whitish flowers are densely clustered at the summit of the stems, protected by the uppermost pair of leaves, which are united at base into a sort of cup.

Richardsonia Scabra is a native of tropical America, sometimes straying northward. It is somewhat sparingly introduced into the South Atlantic and Gulf States. In some localities it is known to the people as "Mexican Clover," as cattle are fond of it.

PLATE 278.

BLADDERWORT. UTRICULARIA INFLATA. (BLADDERWORT FAMILY.)

Aquatic; lower leaves submersed, much dissected into fine, capillary divisions, these bearing small, round bladders; uppermost leaves in a whorl, floating by means of the large, distended petioles; flowers in a simple bracted raceme terminating the long scape, large, irregular; corolla with a conspicuous spur.



WRITING on the eleventh of June, 1852, Thoreau records the finding of "Utricularia Vulgaris, common Bladderwort, a dirty-conditioned flower, like a slovenly woman with a gaudy yellow bonnet." Evidently the anchorite of Walden did not admire the common Bladderwort, which is uncleanly simply because its home is foul. Had he known the Utricularia Inflata we should doubtless have had a prettier description.

A more remarkable plant than this 'twould be difficult to find among our wild flowers. The long slender stem, rooting in the mud at the bottom of ponds, bears numerous leaves that are entirely submersed in the water. These are dissected into delicate thread-like divisions that bear many tiny bladders, whence the name, Utricularia. Above these, resting on the surface of the water, is a raft-like circle of leaves, supported by their inflated stalks. Borne aloft above these last leaves is a stalk with a few large bright yellow flowers. Very odd and irregular blossoms these are, and very showy.

Utricularia Inflata is found in stagnant pools along the Atlantic and Gulf coast, from the Maritime Provinces of Canada to Texas, blossoming all summer. The tiny bladders that cover the submersed leaves are furnished with valves which admit prey—for be it known that the Bladderwort is one of the many plants that have turned the tables on the animal creation, and are not food, but eaters.



— 279 —

PURPLISH HORKELIA.
HORKELIA PURPURASCENS.



— 280 —

FALSE SOLOMON'S SEAL.
VAGNERA (SMILACINA) RACEMOSA.

PLATE 279.

PURPLISH HORKELIA. HORKELIA PURPURASCENS. (ROSE FAMILY.)

Perennial herb; stem low, pubescent, leafy; leaves pinnate, the leaflets two to four-parted; flowers few in a cymose cluster, subtended by small bractlets; calyx purplish, longer than the corolla; petals five, broad, wedge-shaped, purple; stamens numerous.

"The loveliest flowers the closest cling to earth,
And they first feel the sun: so violets blue;
So the soft star-like primrose drenched in dew—
The happiest of Spring's happy, fragrant birth.
To gentlest touches sweetest tones reply,
Still humbleness with her low-breathed voice
Can steal o'er man's proud heart, and win his choice

From earth to heaven, with mightier witchery
Than eloquence or wisdom e'er could own.
Bloom on then in your shade, contented bloom,
Sweet flowers, nor deem yourselves to all unknown—
Heaven knows you, by whose gales and dews ye thrive;
They know, who one day for their altered doom
Shall thank you, taught by you to abase themselves and live."—JOHN KEBLE.



XCEEDINGLY pretty and odd is this native of California. It was discovered by Dr. Rothrock in the Sierra Nevada Mountains, growing at an altitude of nine thousand feet. The original locality was near the headwaters of Kern River. It is a low herbaceous plant, not above six inches high. The leaves are compound, of many leaflets. Soft silky hairs cover the stem and leaves. The flowers are of a handsome rose-purple color, in a small, open cluster. The stamens with their bright yellow anthers are very numerous. An odd thing about them is that those that are opposite the sepals have filaments broader at base and tapering toward the apex, while those opposite the petals are thread-shaped. The fruit consists of a number of dry carpels like the

"seeds" that cover the flesh of the Strawberry, but the receptacle on which they are borne does not become enlarged and soft as in that delicious fruit. Albeit, the genus *Fragaria* to which the Strawberries belong, is nearly allied to *Horkelia*.

Horkelia was named by Chamisso and his collaborator Schlechtendal, who assisted him in working up the collections he made on his voyage in the Pacific, in honor of Johann Horkel, professor of physiology at Berlin. Some botanists unite *Horkelia* with *Potentilla*. This pretty flower strays North and may have reached British Columbia.

PLATE 280.

FALSE SOLOMON'S SEAL. VAGNERA (SMILACINA) RACEMOSA. (LILY FAMILY.)

Stem erect from a fleshy rootstock, somewhat flexuose, leafy, pubescent or nearly smooth; leaves alternate, subsessile, ovate-lanceolate, acuminate, downy beneath; flowers small, white, in a terminal panicle; perianth wheel-shaped, six-parted; stamens six, inserted on the perianth; fruit a berry, globular, two-seeded.

"Where leafy shades fence off the blustering gale,
And breathes in peace the lily of the vale."—WORDSWORTH.



IN just such places as the Lily-of-the-valley loves, its handsome cousin, the False Solomon's Seal, is found. In rich woods, either low woods or on sheltered hillsides, this pretty wild flower may be found. It is extensively distributed in North America, ranging from Canada to South Carolina and westward to Kansas and Arkansas. In May in the South, in the Northern latitudes in June, the terminal panicle unfolds, and the small white blossoms open one by one. Delicate little flowers they are, pretty individually and showy in cluster. The whole plant is elegant in its habit. The stem, rising from a rather long, fleshy, white rootstock, is leafy to the top. The leaves are lily-like, on very short stalks. In late summer they are often discolored by a fungus, a *Septoria*, which causes them to become streaked with brown in an odd fashion. The berries are very pretty, bright red or sometimes pale red speckled with darker color.

The habit and leaves of the plant are much like those of the Solomon's Seal, hence the popular name. False Spikenard is another name for *Vagnera Racemosa*, probably because of the resemblance of the flowers to those of the Spikenard, *Aralia Racemosa*.

PLATE 281.

HOG WEED. AMBROSIA ARTEMISIÆFOLIA. (SUNFLOWER FAMILY.)

Hairy; stem erect, much branched, leafy; leaves alternate, slender petioled, once or twice pinnatifid, uppermost nearly entire; flowers small in unisexual heads, the sterile ones in slender, terminal racemes, the fertile solitary in the axils of the upper leaves, subtended by a nearly closed top-shaped involucre.



AS a rule, our most harmful weeds are natives of the Old World. Our own weeds usually confine themselves with due modesty to fence rows, river banks and sterile fields, not overrunning cultivated ground. Perhaps this more predatory habit on the part of the weeds of Europe is to be accounted for by the fact that at home they have been accustomed to grow with cultivated plants for thousands of years. The Charlock and the Cockle are scarcely seen in Europe outside of grain fields. And that because there is comparatively little untilled soil for them to inhabit. In the New World the conditions are different. Here the weeds have an unlimited stamping ground. Cultivated ground is the rare exception, rather than the rule, in most parts of this continent.

So the Rag-weeds, though usually termed weeds, hardly come under the definition. The Great Rag-weed finds a comfortable home on the banks of rivers and creeks, while the common Hog Weed is content with the poorest soil. In such locations it is abundant. The yellow pollen that both species produce so copiously in August and September is peculiarly annoying to hay fever patients.

PLATE 282.

POKE WEED. PHYTOLACCA DECANDRA. (POKE WEED FAMILY.)

Stem tall, widely branching, succulent, often purplish; leaves alternate, petioled, ovate, acute at both ends, entire, quite smooth; flowers in simple racemes, terminal at first but becoming lateral by the development of axillary shoots, apetalous; sepals five, white, concave; fruit a purple-black, depressed berry.

"What mean these banners spread,
These paths with royal red
So gaily carpeted?
Comes there a prince to-day?

Such footing were too fine
For feet less argentine
Than Dian's own or thine,
Queen whom my tides obey."—LOWELL.



REFLECTING upon the conspicuousness of red color in the autumn landscape, Thoreau takes the Poke Weed as an illustration:

"Some which stand upon our cliffs quite dazzle me with their purple stems now and early in September. Every part is flower, (or fruit,) such is its superfluity of color, stem, branch, peduncle, pedicel, petiole, and even the at length yellowish purple veined leaves. Its cylindrical racemes of berries of various hues, from green to dark purple, six or seven inches long, are gracefully drooping on all sides, offering repasts to the birds; and even the sepals from which the birds have picked the berries are a brilliant lake red, with crimson, flame-like reflections, equal to anything of the kind—all on fire with ripeness."

Few plants have been better described. And the Poke Weed, plebeian of the wayside as it is, deserves all Thoreau's praise. There is a richness, a very abandon of color and life about it. From the thick sappy stems to the luscious, purple-blooded berries, it is abounding in health, vitality. Phytolacca is a common plant throughout the greater part of the United States and Canada. It blossoms from July until the end of summer. The succulent young shoots are sometimes used as a pot-herb.



— 281 —

HOG WEED.

AMBROSIA ARTEMISIAEFOLIA.



— 282 —

POKE WEED.

PHYTOLACCA DECANDRA.

PLATE 283.

LARKSPUR. DELPHINIUM AJACIS. (CROWFOOT FAMILY.)

Stem rather tall, simple or nearly so, leafy; leaves alternate, finely dissected into filiform divisions; flowers in terminal, crowded, spike-like racemes, showy, white or pink; sepals five, colored like the petals, the upper one produced into a spur; petals four, the two upper prolonged into spurs that project into the calyx spur.



THE Larkspur is an important symbol in the Language of Flowers. In general it signifies levity, perhaps by conceiving the qualities of the lark as transferred to the Larkspur. For, does not that merry songster of the Old World scorn the prosaic fields, and delight in soaring up into the dizzy heights of air? Perhaps, again, there is an alert and "ready-to-fly" look about the Larkspur flowers themselves. The Purple Larkspur, *Delphinium Consolida*, conveys the idea of haughtiness, while the Pink Larkspur, the *Delphinium Ajacis*, is the token of fickleness.

The flowers of the Crowfoot Family, usually so regular, as in *Clematis* and *Buttercup*, are sometimes oddly fashioned. The *Columbine*, for example, and the *Aconite*, have quaintly-built blossoms—each and all, that they may be counterparts to their winged ministers. None of them is more striking in this respect than *Delphinium*. Its long spur to one of the sepals, which encloses the shorter spurs into which two of the petals are prolonged, contains the honey which attracts its unwitting partners of the air. *Delphinium* is from the classical name of the "Dolphin," from a fancied resemblance in the flowers to the head of that strange fish.

Delphinium Ajacis is a European plant, sparingly naturalized in northeasterly regions of America.

PLATE 284.

ELM-LEAVED GOLDEN-ROD. *SOLIDAGO ULMIFOLIA*. (SUNFLOWER FAMILY.)

Stem erect, rather tall, smooth; leaves thin, elliptical or ovate-lanceolate; acute at apex and narrowed at base, coarsely serrate, only the mid-vein prominent, uppermost very small; clusters of heads in one-sided racemes, forming a terminal open panicle; heads small, few-flowered; involucre-scales linear; rays four or five.

"Graceful, tossing plume of glowing gold,
Waving lonely on the rocky ledge;
Leaning seaward, lovely to behold,
Clinging to the high cliff's ragged edge;

"Burning in the pure September sky,
Spike of gold against the stainless blue,
Do you watch the vessels drifting by?
Does the quiet day seem long to you?

"Matters not to you, O golden flower!
That such eyes of worship watch you sway?
But you make more sweet the dreamful hour,
And you crown for me the tranquil day."—CELIA THAXTER.



UBIQUITOUS are the Golden-rods in North America! Every climate, every soil, every altitude, has its species. Some love the hot sands along the Gulf Coast. Others flourish in the swamps that border the Atlantic. Several species are peculiar to the Alleghany and Blue Ridge Mountains. The great plains of the West are gay in autumn with their characteristic kinds. The naked crags of the Rockies give shelter to some dwarf *Solidagos*. Others are found only on the Pacific Slope. A Carolina species begins to blossom in May, while many are yet in flower when the first frost comes.

Solidago Ulmifolia is a not uncommon species in eastern and north-eastern regions of the continent, growing in thickets and the borders of low woods. It is a tall-stemmed species, with the heads arranged one-sided on the long, curved branches.



— 283 —
LARKSPUR.
DELPHINIUM AJACIS.



— 284 —
ELM-LEAVED GOLDEN-ROD.
SOLIDAGO ULMIFOLIA.

PLATE 285.

WILD PEPPERGRASS. *LEPIDIUM VIRGINICUM*. (CRESS FAMILY.)

Annual; stem erect, branching, leafy, glabrous or slightly pubescent; leaves alternate, tapering into a short petiole, root-leaves lyrate-pinnatifid, cauline undivided, sharply serrate, ovate-lanceolate to narrowly linear; flowers small, greenish, slender-pedicelled, in terminal racemes; silicle small, flat, orbicular in outline, marginless.



WE are all familiar with the Peppergrass, that small weed so common in fields and roadsides. Its first tiny white green blossoms open with the flowers of May. The Golden-rods and Asters find it still in flower. Often it perseveres until the first frost of autumn cuts short its career. It comes early and stays late, ripening many minute seeds and spreading ever farther afield. The Peppergrass is said to be an emigrant from the Southern States. If so, it has made itself well at home northward. The whole plant has the pleasantly pungent taste so common in the family to which it belongs; and to this peppery flavor it owes its name. The root especially abounds in the acrid oil which is so pleasing to the palate in Mustard, Horse-radish and Cress.

The Peppergrass somewhat resembles in appearance its cousin the Shepherd's Purse. Like the latter, it flowers through a great part of the year. It may be easily distinguished, however, by its more bushy growth, and its rounded, rather than triangular, seed-pods.

Lepidium, the botanical name of the Peppergrass, is from a Greek word signifying "a small scale." There are many species in the West.

PLATE 286.

LAMB'S QUARTERS. *CHENOPODIUM ALBUM*. (GOOSEFOOT FAMILY.)

Stem erect, much branched, one to six feet high, striate, glabrous but usually "mealy" granular; leaves on long slender petioles, lower rhombic ovate and angularly lobed or toothed, upper ones linear entire, glaucous; flowers small, greenish, perfect, in panicle spikes; calyx five-lobed, lobes carinate.



RARELY any plant is more commonplace in external appearance than the "Lamb's Quarters." This homely weed of waste-ground and field, at home in the vacant lot, in the crowded city and by the side of the quiet country road, seems the embodiment of all that is sordid and uninteresting. Yet even the outer part of the plant is not unbeautiful to the trained eye. Beauty is not for all. It is revealed to those who know how to look for it. One needs not to know *where*, for it is everywhere. Without the microscope and without any knowledge of botany, one may learn to find loveliness in Horse-weed or Mullein. With the microscope, and knowing something of botany, each despised weed becomes a treasure-house—with an architecture admirable because fitting, un wasteful and uncopied.

Few plants possess more that is interesting than the *Chenopodiums*, of which the Lamb's Quarters is one. The small seeds, usually flattened and with a brown or black shining crust, are things of beauty when examined. Nothing in the vegetable world is more exquisite than the tiny coiled embryo that looks like thread wound spirally.

Chenopodium Album is now thoroughly distributed over a great part of North America. It flowers in late summer.



— 285 —

WILD PEPPERGRASS.

LEPIDIUM VIRGINICUM.



— 286 —

LAMB'S-QUARTERS.

CHENOPODIUM ALBUM.



— 287 —

CLINTONIA.

CLINTONIA BOREALIS.



— 288 —

GREEN-REIN ORCHIS.

HABENARIA BRACTEATA.

JUNE.

PLATE 287.

CLINTONIA. CLINTONIA BOREALIS. (LILY FAMILY.)

Perennial; rootstock short, thick, toothed, stem short; leaves clustered at base, usually three or four, oblong or obovate, short-pointed, margin ciliate; flowers few, in a terminal umbel, large, open campanulate; sepals six, greenish, lanceolate, spreading; fruit an egg-shaped, dark blue berry.



CLINTONIA Borealis, the *Northern Clintonia*, is an inhabitant of bogs and cool mountain woods in the eastern part of the continent, ranging from Labrador southward, chiefly along the Appalachians, to the Carolinas, and westward through Eastern Canada and the Northern States to Minnesota. It is a fine plant, with handsome leaves, greenish yellow blossoms and dark blue berries in late summer. Its flowering time is May and June.

Thoreau has a pretty account of it:

"Its beauty at present consists chiefly in its commonly three very handsome, rich, clear, dark green leaves, which Bigelow describes truly as 'more than a half a foot long, oblanceolate, smooth, and shining.' They are perfect in form and color, broadly oblanceolate, with a deep channel down the middle, uninjured by insects, arching over from a centre at the ground. * * * In fact, the plant is all green, both leaves and corolla. The leaves alone—and many have no scape—would detain the walker. Its berries are its flower. A single plant is a great ornament in a vase, from the beauty of its form and the rich, unspotted green of its leaves."

PLATE 288.

GREEN REIN-ORCHIS. HABENARIA BRACTEATA. (ORCHIS FAMILY.)

Stem smooth, erect from a cluster of thickened, fibrous roots, leafy; leaves alternate, obovate, uppermost lanceolate and bract-like; flowers in a terminal raceme, much exceeded by the bracts; greenish; spur short, lip narrow, three-lobed; pollen masses attached to conspicuous viscid glands.



HERE is a peculiar pleasure in finding rare things, even though they be not intrinsically beautiful or interesting. We prize a little-known plant, simply because it is rare and little-known. Describing his first sight of the rose-breasted Gross-beak, Thoreau writes exultingly:

"Birds answer to flowers, both in their abundance and their rareness. The meeting with a rare and beautiful bird like this is like meeting with some rare and beautiful flower, which you may never find again, perchance."

The Orchid Family is pre-eminently one of rare plants. Many of our most retiring wild flowers which we may hope to find only by forcing our way through deep woods or into almost impenetrable bogs, are Orchids. Such is the beautiful Calypso, one of the least-known and most beautiful of flowers. It seems odd at first that these plants should not be common, they produce such enormous quantities of seed. Shake the ripe pod of a Coral-root or Lady's Slipper and out falls what looks like a shower of sawdust. Every atom is a seed. Perhaps when seeds are produced in such quantity, only a few in each pod are fertile.

Many orchids that cannot be called beautiful are attractive on account of their rarity. Such is the Green Rein-Orchis, *Habenaria Bracteata*, which occurs sparingly throughout North America, east of Dakota and north of Georgia.

The Strange Story of the Flowers.

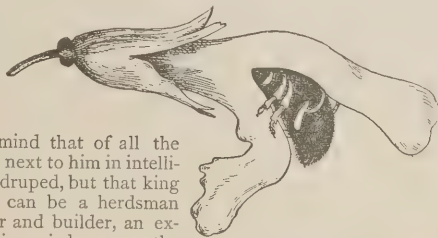
Dress Counts for Much. To Catch Dust on One's Clothes is More Than to Carry Brains in One's Head.

Imagine a Venetian doge, a French crusader, a courtier of the time of the second Charles, an Ojibway chief, a Justice of the Supreme Court, in the formal black of evening dress, and how much each of them would lose! Where there is beauty, strength or dignity, dress can heighten it; where all these are lacking, their absence is kept out of mind by raiment in itself worthy to be admired. If dress artificial has told for much in the history of human-kind, dress natural has told for yet more in the lesser world of plant and insect life. In some degree the tiny folk that reign in the air, like ourselves, are drawn by grace of form, by charm of color; of elaborate display of their attractions moths, butterflies and beetles are just as fond as any belles of the ball-room. Now let us bear in mind that of all the creatures that share the earth with man, the one that stands next to him in intelligence is neither a biped nor a quadruped, but that king of the insect tribe, the ant, which can be a herdsman and warehousekeeper, an engineer and builder, an explorer and a general. With all his varied powers the ant lacks a peculiarity in his costume which has denied him enlistment in a task of revolution in which creatures far his inferiors have been able to change the face of the earth. And the marvel about this peculiarity of garb which has meant so much is that it consists in no detail of graceful outline, or beauty of tint, but solely in the minor matter of texture. The ant, warrior that he is, wears smooth and shining armor; the bee, the moth and the butterfly are clad in downy vesture, and simply because thus enabled to catch dust on their clothes these insects, as weavers of the web of life, have counted for immensely more than the ant with all his brains and character. To understand the mighty train of consequences set in motion by this mere shagginess of coat, let us remember that, like a human babe, every flowering plant has two parents. These two parents, though



Lady's Slipper and bee entering for nectar and pollen.

a county's breadth divide them, are wedded the instant that pollen from the anther of one of them meets the stigma of the other. Many flowers find their mates upon their own stem; but, as in the races of animals, too close intermarriage is hurtful, and



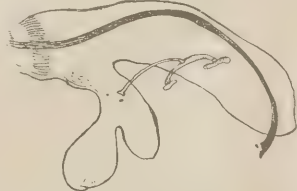
Sage-flower and bee.

union with a distant stock promotes both health and vigor. Hence the great gain which has come to plants by engaging the wind as their match-maker,—as every summer shows us in its pollen-laden air, the oaks, the pines, the cottonwoods, and a host of other plants commit to the breeze the winged atoms charged with the continuance of their kind. Nevertheless, long as the wind has been employed at this work, it has not yet learned to do it well; nearly all the pollen entrusted to it is wasted, and this while its production draws severely upon the strength of a plant. As good fortune will have it, a great many flowers close to their pollen yield an ample supply of nectar: a food esteemed delicious by the whole round of insects winged and wingless. While ants might sip this nectar for ages without plants being any the better or the worse, a very different result has followed upon the visits of bees, wasps, and other hairy-coated callers. These, as they devour nectar, dust themselves with the pollen near by. Yellowed or whitened with this freightage, moth and butterfly as they sail through the air know not that they are publishing the banns of marriage between two blossoms acres or, it may be,

miles apart. Yet so it is. Alighting on a new flower the insect rubs a pollen grain on a stigma ready to receive it, and lo! the rites of matrimony are solemnized then and there. Unwittingly the little visitor has wrought a task bigger with fate than many an act loudly trumpeted among the mightiest deeds of men! In our illustration of the Lady's Slipper a bee is detected in the act of entrance. In the Sage-flower he finds an anther of the stamen which, pivoted on its spring, dusts him even more effectually.

Inn and Inn-sign.

Bountifully to spread a table is much, but not enough, for without invitation how can hospitality be dispensed? To the feast of nectar the blossoms join their bidding; and those most conspicuously borne and massed, gayest of hue, richest in odor, secure most guests, and are therefore most likely to transmit to their kind their own excellences as hosts and entertainers. Thus all the glories of



Sage-flower—Anther of stamen tilted by visiting bee.

the blossoms have arisen in doing useful work ; their beauty is not mere ornament, but the sign and token of duty well performed. Our opportunity to admire the radiancy and perfume of a jessamine or a pond-lily is due to the previous admiration of uncounted winged attendants. If a winsome maid adorns herself with a wreath from the garden, and carries a posy gathered at the brookside, it is for the second time that their charms are impressed into service; for the flowers' own ends of attraction all their scent and loveliness were called into being long before.



Wild Rose, Single.

did differences so striking come about? In our rambles afield let us seek a clue to the mystery. It is late in springtime, and near the border of a bit of swamp we notice a clump of violets: they are pale of hue, and every stalk of them rises to an almost weedy height.

Twenty paces away, on a knoll of dry ground, we find more violets, but these are in much deeper tints of azure and yellow, while their stalks are scarcely more than half as tall as their brethren near the swamp. Six weeks pass by. This time we walk to a wood-lot close to a brimming pond. At its edge are more than a score wild-rose bushes. On the very first of them we see that some of the blossoms are a light pink, others a pink so deep as to seem dashed with vivid red. And while a flower here and there is decidedly larger and more vigorous than its fellows, a few of the blossoms are undersized and puny: the tide of life flows high and merrily in a fortunate rose or two, it seems to ebb and falter by the time it reaches one or two of their unhappy mates. As we search bush after bush we are at last repaid for sundry scratches from their thorns by securing a double rose, a "sport," as a gardener would call it. And in the broad meadow between us and home we well know that for the quest we can have not only four-leaved clovers, but perchance a handful of five and six-leaved prizes. The secret is out. Flowers and leaves are not cast like bullets in rigid molds, but differ from their parents much as children do. Usually the difference is slight, at times it is as marked as in our double rose. Whenever the change in a flower is for the worse, as in the sickly violets and roses we have observed, that particular change ends there—with death. But when the change makes a healthy flower a little more attractive to its insect ministers, it will naturally be chosen by them for service, and these choosings, kept up year after year, and century upon century, have at last accomplished much the same result as if the moth, the bee, and the rest of them had been given power to create blossoms of the most welcome forms, the most alluring tints, the most bewitching perfumes.

Relapse Into Old Habits.

In farther jaunts afield we shall discover yet more. It is May and a heavy rain-storm has caused the petals of a trillium to forget themselves and return to their

primitive hue of leafy green. A month later we come upon a buttercup, one of whose sepals has grown out as a small but perfect leaf. Later still in summer we find a rose in the same surprising case, while not far off is a columbine bearing pollen on its spurs instead of its anthers. What family tie is betrayed in all this? No other than that sepals, petals, anthers and pistils are but leaves in disguise, and that we have detected nature returning to the form from which ages ago she began to transmute the parts of flowers in all their teeming diversity. The leaf is the parent not only of all these but of the delicate tendrils which save a vine the cost of building a stem stout enough to lift it to open air and sunshine. However thoroughly, or however long, a habit may be impressed upon a part of a plant, it may on occasion relapse into a habit older still, resume a shape all but forgotten, and thus tell a story of its past that otherwise might remain for ever unsuspected. Thus is it with the somewhat rare "sport" that gives us a morning glory or a harebell in its primitive form of unjoined petals. The bell form of these and similar flowers has established itself by being much more effective than the original shape in dusting insect servitors with pollen. Not only the forms of flowers but their massing has been determined by insect preferences; a wide profusion of blossoms grow in spikes, umbels, racemes and other clusters, all

economising the time of winged allies, and attracting their attention from afar as scattered blossoms would fail to do. Besides this massing, we have union more intimate still as in the dandelion, the sunflower and the marigold. These and their fellow composites each seem an individual; a penknife discloses each of them to be an aggregate of blossoms. So gainful has this kind of co-operation proved that composites are now dominant among plants in every quarter of the globe. As to how composites grew before they learned that union is strength, a hint is dropped in the "sport" of the daisy known as "the hen and chickens," where perhaps as many as a dozen florets, each on a stalk of its own, ray out from a mother flower.

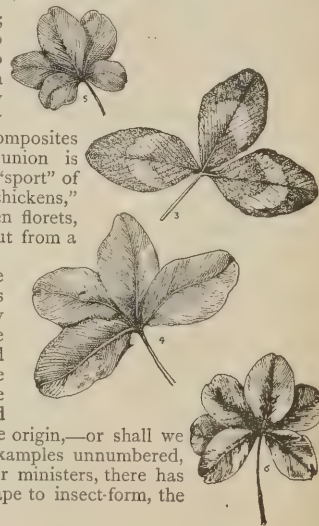
While for the most part insects have been mere choosers from among various styles of architecture set before them by plants, they have sometimes risen to the dignity of builders on their own account, and without ever knowing it. The buttress of the larkspur has sprung forth in response to the pressure of one bee's weight after another, and many a like structure has had the very same origin,—or shall we say, provocation? In these and in other examples unnumbered, culminating in the marvellous orchids and their ministers, there has come about the closest adaptation of flower-shape to insect-form, the one now clearly the counterpart of the other.

If Thou Wilt Not Work, Neither Shalt Thou Eat.

We must not forget that the hospitality of a flower is after all the hospitality



Wild Rose, "Sporting" as a "Double."



Clover, with four, five and six-leaved sports.

of an inn-keeper who earns and requires payment. Vexed as flowers are apt to be by intruders that consume their stores without requital, no wonder that they present so ample an array of repulsion and defence. Best of all is such a resource as that of the red clover, which hides its honey at the bottom of a tube so deep that only a friendly bumblebee can sip it. Less effective, but well worth a moment's examination, are the methods by which leaves are opposed as fences for the discouragement of thieves. Here, in a Bellwort, is a perfoliate leaf that encircles the stem upon which it grows; and there in a Honeysuckle, is a connate leaf, on much the same plan, formed of two leaves, stiff and strong, soldered at their bases. Sometimes the pillager meets prickles that sting him, as in the roses and briars; and if he is a little fellow he is sure to regard with intense disgust a bristly guard of wiry hair—hence the commonness of that kind of fortification. Against enemies of larger growth a tree or shrub will often aim sharp thorns—another piece of masquerade, for thorns are but branches checked in growth, and frowning with a barb in token of disappointment at not being able to smile in a blossom. In every jot and tittle of barb or prickle, of the glossiness which disheartens or the gumminess which ensnares, we may be sure that equally with all the lures of hue, form and scent, nothing, however trifling it may seem, is as we find it except through usefulness long tested and approved. In flowers, much that at a first glance looks like idle decoration, on closer scrutiny reveals itself as service in disguise. In penetrating these disguises and many more of other phases, the student of flowers delights to busy himself. He loves, too, to detect the cousinship of plants through all the change of dress and habit due to their rearing under widely different skies and nurture, to their being surrounded by strangely contrasted foes and friends. Often he can link two plants together only by going into partnership with a student of the rocks, by turning back the records of the earth until he comes upon a flower long extinct, a plant which ages ago found the struggle for life too severe for it. He ever takes care to observe his flowers accurately and fully, but chiefly that he may rise from observation to explanation, from bare facts to their causes, from declaring What to understanding Whence and How.

The Inn-Keeper Turns Slayer.

One of the stock resources of novelists, now somewhat out of date, was the inn-keeper who beamed in welcome of his guest, grasped his hand in gladness, and loaded a table for him in tempting array, and all with intent that later in the day (or night) he might the more securely plunge a dagger into his victim's heart—if, indeed, he had not already improved an opportunity to offer to that victim's lips a poisoned cup. This imagined treachery might well have been suggested by the behaviour of certain alluring plants that so far from repelling thieves, or discouraging pillagers, open their arms to all comers—with purpose of the deadliest. Of these betrayers the chief is the round-leaved sun-dew, which plies its nefarious vocation all the way from Labrador to Florida. Its favorite site is a peat-

bog or a bit of swampy low-land, where in July and August we can see its pretty little white blossoms beckoning to wayfaring flies and moths their token of good cheer! Circling the flower-stalk, in rosette fashion, are a dozen or more round leaves, each of them wearing scores of glands, very like little pins, a drop of gum glistening on each and every pin by way of head. This appetizing gum is no other than a fatal stick-fast, the raying pins closing in its aid the more certainly to secure a hapless prisoner. Soon his prison house becomes a stomach for his absorption. Its duty of digestion done, the leaf in all seeming guilelessness once more expands itself for the enticement of another dupe. To see how much the sun-dew must depend upon its meal of insects we have only to pull it up from the ground. A touch suffices—it has just root enough to drink by; the soil in which it makes, and perhaps has been obliged to make, its home has nothing else but drink to give it.

Less accomplished in its task of assassination is the common butterwort to be found on wet rocks in scattered districts of Canada and the States adjoining Canada. Surrounding its pretty violet flowers, of funnel shape, are gummy leaves which close upon their all too trusting guests, but with less expertness than the sun-dew's. The butterwort is but a 'prentice hand in the art of murder, and its intended victims often manage to get away from it. Built on a very different model is the bladderwort busy in stagnant ponds near the sea coast from Nova Scotia to Texas. Its little white spongy bladders, about a tenth of an inch across, encircle the flowering stem by scores. From each bladder a bunch of twelve or fifteen hairy prongs protrude, giving the structure no slight resemblance to an insect form. These prongs hide a valve which, as many an unhappy little swimmer can attest, opens inward easily enough, but opens outward never. As in the case of its cousinry a-lad, the bladderwort at its leisure dines upon its prey.

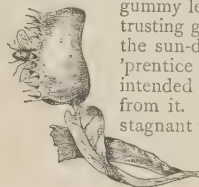
In marshy places near the mouth of the Cape Fear River, in the vicinity of Wilmington, North Carolina, grows the Venus' fly-trap, most wonderful of all the death-dealers of vegetation. Like much else in nature's handiwork this plant might well have given inventors a hint worth taking. The hairy fringes of its leaves are as responsive to a touch from moth or fly as the sensitive plant itself. And he must be either a very small or a particularly sturdy little captive that can escape through the sharp opposed teeth of its formidable snare. It is one of the unexplained puzzles of plant life that the Venus' fly-trap, so marvellous in its ingenuity, should not only be confined to a single district, but should seem to be losing its hold of even that small kingdom. Of still another type is the pitcher plant, or side-saddle flower, which flaunts its deep purple petals in June in many a peat-bog from Canada southward to Louisiana and Florida. Its leaves develop themselves into lidded cups, half filled with sweetish juice, which first lures a fly or ant, then makes him tipsy, and then despatches him. The broth resulting is both meat and drink to the plant, serving as a store and reservoir against times of drought and scarcity.



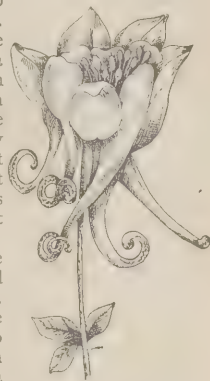
Buttercup with a sepal growing as a leaf.



Venus' Fly Trap—Open with a Welcome!



Shut for Slaughter!



Columbine with spurs instead of anthers bearing its pollen

Plants as Learners.

Now the question is, How came about this strange and somewhat horrid means of livelihood? How did plants of so diverse families turn the tables on the insect world, and learn to eat instead of being themselves devoured? A beginner in the builder's art finds it much more gainful to examine the masonry of foundations, the rearing of walls, the placing of girders and joists, the springing of arches and buttresses, than to look at a cathedral, a court house, or a bank, finished and in service. In like manner a student of insect-eating plants tries to find their leaves in the making, in all the various stages which bridge their common forms with the shapes they assume when fully armed and busy. Availing himself of the relapses into old habits which plants occasionally exhibit under cultivation, Mr. Dickson has taught us much regarding the way the pitcher plant of Australia, the *Cephalotus*, has come to be what it is. He has arranged in a connected series all the forms of its leaf from that of a normal leaf with a mere dimple in it, to the deeply pouched and lidded pitcher ready for deceitful hospitalities. And similar transformations have without doubt taken place in the pitcher plants of America. Observers in the Cape of Good Hope have noted two plants *Roridula dentata* and *Biblys gigantea*, which are evidently following in the footsteps of the sun-dews, and may be expected in the fulness of years to be their equal partners in crime. But why need we wander so far as Southern Africa to find the germs of this strange capacity when we can see at home a full dozen species of catch-fly, sedums, primulas, and geraniums pouring out glutinous juices in which insects are entangled? Let stress of hunger, long continued, force any of these to turn its attention to the dietary thus proffered, and how soon might not the plant find in felony the sustenance refused to honest toil?

Picking and Choosing.

But after all the plants that have meat for dinner are only a few. The greater part of the vegetable kingdom draws its supplies from the air and the soil. Those plants, and they are many, that derive their chief nourishment from the atmosphere have a decidedly thin diet. Which of us would thrive on milk at the rate of a pint to five hogsheads of water? Such is the proportion in which air contains carbonic acid gas, the main source of strength for many thousands of trees, shrubs, and other plants. No wonder that they array themselves in so broad an expanse of leafage. An elm with a spread of seventy feet is swaying in the summer breeze at least five acres of foliage as its lungs and stomach. Beyond the shade of elms and maples let us stroll past yonder stretch of pasture and we shall notice how the grass in patches here and there deepens into green of the richest—a plain token of moisture in the hollows—a blessing indeed in this dry weather. In the far west and north-west the buffalo grass has often to contend with drought for months together, so that it has learned to strike deep in quest of water to quench its thirst. It is a by-word among the ranchmen that the roots go clear through the earth and are clinched as they sprout from the ground in China. Joking apart, they have been found sixty-eight feet below the surface of the prairie, and often in especially dry seasons cattle would perish were these faithful little well-diggers and pumpers constantly at work for them. In the river valleys of Arizona although the air is dry the subsoil water is

near the surface of the ground. Here flourishes the mesquit tree, *Prosopis juliflora*, with a tale to tell well worth knowing. When a mesquit seems stunted, it is because its strength is withdrawn for the task of delving to find water; where a tree grows tall with goodly branches, it betokens success in reaching moisture close at hand. Thus in shrewdly reading the landscape a prospector can choose the spot where with least trouble he can sink his well. And plants discover provender in the soil as well as drink. Nearer home than Arizona we have only to dislodge a beach pea from the ground to see how far in search of food its roots have dug amid barren stones and pebbles. Often one finds a plant barely a foot high with roots extending eight feet from its stem.

And beyond the beaches where the beach peas dig so diligently are the seaweeds—with a talent for picking and choosing all their own. Dr. Julius Sachs, a leading German botanist, believes that the parts of plants owe their form, as crystals do, to their peculiarities of substance; that just as salt crystallizes in one shape and sugar in another, so a seaweed or a tulip is moulded by the character of its juices. Something certainly of the crystal's faculty in picking out particles akin to itself, and building with them, is shown by the kelp which attracts from the ocean both iodine and bromine—often dissolved though they are in a million times their bulk of sea-water. This trait of choosing this or that dish from the feast afforded by sea or soil or air is not peculiar to the sea-weeds, every plant displays it. Beech trees love to grow on limestone and thus declare to the explorer the limestone ridge he seeks. In the Horn silver mine, of Utah, the zinc mingled with the silver ore is betrayed by the abundance of the zinc violet, a delicate and beautiful cousin of the pansy. In Germany this little flower is admittedly a signal of zinc in the earth, and zinc is found in its juices. The late Mr. William Dorn, of South Carolina, had faith in a bush, of unrecorded name, as betokening gold-bearing veins beneath it. That his faith was not without foundation is proved by the large fortune he won as a gold miner in the Blue Ridge country—his guide the bush aforesaid. Mr. Rossiter W. Raymond, the eminent mining engineer of New York, has given some attention to this matter of "indicative plants." He is of opinion that its unwritten lore among

practical miners, prospectors, hunters and Indians is well worth sifting. Their observations, often faulty, may occasionally be sound and valuable enough richly to repay the trouble of separating truth from error. When we see how important as signs of water many plants can be, why may we not find other plants denoting the minerals which they especially relish as food or condiment?

The Land as a Larder.

Of more account than gold or silver are the harvests of wheat and corn that ripen in our fields. There the special appetites of plants have much more than merely curious interest for the farmer. He knows full well that his land is, but a larder which serves him best when not part but all its stores are in demand. Hence his crop "rotation," his succession of wheat to clover, of grass to both. Were he to grow barley every year he would soon find his soil bared of all the food that barley asks, while fare for peas or clover stood scarcely broached. If he insists on planting



Maple Seed, with pair of wings.



Pitcher Plant and Flower.



Dandelion Seeds ready for flight.

barley always, then he must perforce restore to the land the food for barley constantly withdrawn.

A Vigorous Emigration Policy.



Epilobium Seed with feathery wing

A plant may diligently find food and drink, pour forth delicious nectar, array itself with flowers as gaily as it can, and still behold its work unfinished. Its seed may be produced in plenty, and although as far as that goes it is well, it is not enough. Of what avail is all this seed if it falls as it ripens upon soil already overcrowded with its kind? Hence the vigorous emigration policy to be observed in plants of every name. Hence the fluffy sails set to catch the passing breeze by the dandelion, the thistle and by many more, including that southern plant of snowy wealth whose wings are cotton. With the same intent of seeking new fields are the hooks of the burdock, the unicorn plant

and the bur-parsley which impress as carriers the sheep and cattle upon a thousand hills. The Touch-me-not and the herb Robert adopt a different plan, and convert their seed-cases into pistols for the firing of seeds at as wide range as twenty feet and more. The maple, the ash, the hornbeam, the elm and the birch have yet another method of escape from the home acre. Their seeds are winged, and torn off in a gale are frequently borne two hundred yards away. And stronger wings than these are plied in the cherry-tree's service. The birds bide the time when a blush upon the fruit betrays its ripeness. Then the cherries are greedily devoured, and their seed, preserved from digestion in their stony cases, are borne over hill, dale and river to some islet or brook-side where a sprouting cherry plant will be free from the stifling rivalries suffered by its parent. Yoked in harness with sheep, ox and bird as planter is yonder nimble squirrel. We need not begrudge him the store of nuts he hides. He will forget some of them, he will be prevented by fright or frost from nibbling yet more, and so without intending it he will ensure for others and himself a sure succession of acorns and butternuts.

Very singular are the seeds that have come to resemble beetles; among these may be mentioned the seeds of the castor-oil plant and of the *Iatropha*. The pod of the *Biserrula* looks like a worm, and a worm half coiled might well have served as a model for the mimicry of the *Scorpiurus vermiculata*. All these are much more likely to enlist the services of birds than if their resemblances to insects were less striking.

Nature elsewhere rich in hints to the gardener and the farmer is not silent here. A lesson plainly taught in all this apparatus for the dispersal of seeds is that the more various the planting the fuller the harvest. Now that from the wheat-fields comes a cry of disappearing gains, it is time to heed the story told in the unbroken prairie that diversity in sowing means wealth in reaping.

Unbidden Guests, Welcome and Otherwise.

In a field of growing flax we can find—somewhat oftener than the farmer likes—a curious tribe of plants, the dodders. Their stems are thin and wiry, and their small white flowers, globular in shape, make the azure blossoms of the flax all the lovelier by contrast. As their cousins the morning glories are to this day, the dodders in their first estate were true climbers. Even now they begin life in an honest kind of way with roots of their own that go forth as roots should, seeking food where it is to be found in the soil. But if we pull up one of these little club-shaped roots we shall

see that it has gone to work feebly and doubtfully; it seems to have a skulking expectation of dinner without having to dig and delve for it in the rough dirty ground. Nor is this expectation unfounded. Watch the stem of a sister dodder as it rises from the earth day by day, and it will be observed to clasp a stalk of flax very tightly; so tightly that its suckers will absorb the juices of its unhappy host. When it can regale itself with food ready to hand so very easily, why should it take the trouble to drudge for a living?

Pauperism's Degradation.

Like many another pauper demoralized by being fed in idleness, the plant now abandons honest toil, its roots from lack of exercise wither away, and for good and all it ceases to claim any independence whatever. Indeed, so deep is the dodder's degradation that if it cannot find a stem of flax, or hop, or other plant whereon to climb and thieve, it will simply shrivel and die rather than resume habits of industry so long renounced as to be at last forgotten.

Like the lowly dodder the mistletoe is a climber that has discovered large opportunities of theft in ascending the stem of a supporting plant. On this continent the mistletoe scales a wide variety of trees and shrubs, preferring poplars and apple-trees, where these are to be had. Its extremely slender stem, its meagre leaves, its small flowers, greenish and leathery, are all eloquent as to the loss of strength and beauty inevitable to a parasite. Rising as this singular plant does out of the branches of another with a distinct life all its own, it is no other than a natural graft, and it is very probable that from the hint it so unmistakably gives the first gardeners were not slow to adopt grafts artificial—among the resources which have most enriched and diversified both flowers and fruits. The dodders and mistletoes rob juices from the stem and branches of their unfortunate hosts; more numerous still are the unbidden guests that fasten themselves upon the roots of their prey. The broom-rape, a comparatively recent immigrant from Europe, lays hold of the roots of thyme in preference to other place of entertainment; the Yellow Rattle, the Lousewort, and many more attach themselves to the roots of grasses—frequently with a serious curtailment of crop.

Lodgers Generous of Gifts.

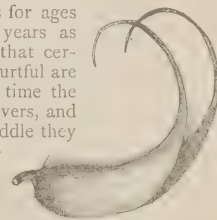
Yet in this very department of hers Nature has for ages hidden away what has been disclosed within twenty years as one of her least suspected marvels. It is no other than that certain parasites of field and meadow so far from being hurtful are well worth cultivating for the good they do. For a long time the men who devoted themselves to the study of peas, beans, clovers, and other plants of the pulse family, were confronted with a riddle they could not solve. These plants all manage to enrich themselves with compounds of nitrogen, which make them particularly valuable as food, and these compounds often exist in a degree far exceeding the rate at which their nitrogen comes out of the soil. And this while they have no direct means of seizing upon the nitrogen contained in its great reservoir—the atmosphere. The mystery was only cleared up by a piece of careful observation. Upon certain roots of beans and peas it was noted that there were little round excrescences about the size of a small pin's head. These excrescences on



Bur Parsley Seed ready to steal a ride.



Burdock Seed



Seed of Unicorn Plant, another assisted emigrant

examination with a microscope proved to be swarming with bacteria of minute dimensions. Further investigation abundantly showed that these little guests paid a handsome price for their board and lodging—while they subsisted in part on the juices of their host they passed into the bean or pea certain valuable compounds of nitrogen which they built from common air. At the Columbian Exposition last year one of the striking exhibits in the Agricultural Building set this forth in detail. Vials were shown containing these tiny subterranean aids to the farmer, and large photographs showed in natural size the vast increase of crop due to the farmer's taking bacteria into partnership. To-day these little organisms are cultivated of set purpose, and quest is being made for similar bacteria suitable to be harnessed in producing wheat, corn and other harvests.

From Observation to Experiment.

These are times when men of science are discontented with mere observation. They wish to pass from watching things as nature presents them to putting them in relations wholly new. In 1866 DeBary, a close observer of lichens, felt confident that a lichen was not the simple growth it seems, but a combination of fungus and algæ. This opinion, so much opposed to honored tradition, was scouted, but not for long. Before many months had passed Stahl took known algæ, and upon them sowed a known fungus, the result was a known lichen! The fungus turns out to be no other than a slave-driver that captures algæ in colonies and makes them work for him. He is however a slave-driver of an intelligent sort; his captives thrive under his mastery, and increase more rapidly for the healthy exercise he insists that they shall take.



Seed of *Scorparius vermiculatus*, microscopically coiled worm.

free sunshine of upper air! The scene, with its quivering rounds of sunlight, seems peace itself, but the seeming is only a mask for war as unrelenting as that of weaponed armies. For every ray of the sunbeam, for every atom of food, for every inch of standing room, there is deadly rivalry. To begin the fight is vastly easier than to maintain it, and not one in a hundred of these bantlings will ever know maturity. We have only to do what Darwin did—count the plants that throng a foot of soil in spring, count them again in summer, and at summer's end, to find how great the inexorable carnage in this unseen combat, how few its survivors. So hard here is the fight for a foothold, for daily bread, that the playfulness inborn in every healthy plant can peep out but timidly and seldom. But when strife is exchanged for peace, when a plant is once safely sheltered behind a garden fence, then the struggles of the battlefield give place to the diversions of the garrison—diversions not infrequently hilarious enough. Now food abounds and superabounds; henceforth neither drought nor deluge can work their evil will: insect foes, as well as may be, are kept at bay; there is room in plenty instead of dismal overcrowding. The grateful plant repays the care bestowed upon it by bursting into a sportiveness unsuspected, and indeed impossible, amidst the alarms and frays incessant in the wilderness. It departs from parental habits in



Is it a bug? No, Only a Seed of Oil Plant.

most astonishing fashion, puts forth blossoms of fresh grace of form, of new dyes, of doubled magnitude. The gardener's opportunity has come. He can seize upon such of these "sports" as he chooses and make them the confirmed habits of his wards.

Take a stroll through his parterres and greenhouses, where side by side he shows you pansies of myriad tints and the modest little wild violets of kindred to the pansies' ancestral stock. Let him contrast for you roses, asters, tuberous begonias, hollyhocks, dahlias, pelargoniums, before cultivation and since. Were wild flowers clay, were the gardener both painter and sculptor, he could not have wrought marvels more glorious than these. In a few years the brethren of his guild have brought about a revolution for which, if possible at all to her, nature in the open field would ask long centuries. And the gardener's experiments with these strange children of his have all the charm of surprise. No passive chooser is he of "sports" of promise, but an active matchmaker between flowers often brought together from realms as far apart as France and China. Sometimes his experiment is an instant success. Mr. William Paul, a famous creator of splendid flowers, tells us that at a time when climbing roses were either white or yellow, he thought he would like to produce one of bright dark color. Accordingly he mated the Rose Athelin, of vivid crimson, with Russelliana, a hardy climber, and lo, the flower he had imagined and longed for stood revealed! But this hitting the mark at the first shot is uncommon good fortune with the gardener. No experience with primrose or chrysanthemum is long and varied enough to tell him how the crossing of two different stocks will issue. A rose which season after season opposes only indifference to all his pains may be secretly gathering strength for a bound beyond its ancestral paths which will carry it much farther than his hopes, or, perhaps, his wishes.



Pod of *Biserrula*, masquerading as a grub.

Possibilities of Experiment.

Most flowers are admired for their own sweet sakes, but who thinks the less of an apple, or a cherry blossom because it bears in its beauty the promise of delicious fruit? Put a red Astrachan beside a sorry crab, a Bartlett pear next a tough, diminutive wild pear such as it is descended from, an ear of milky corn in contrast with an ear one-fourth its size, each grain of which, small and dry, is wrapped in a sheath by itself; and rejoice that fruits and grains as well as flowers can learn new lessons and remember them. At Concord, Massachusetts, in an honored old age, dwells Mr. Ephraim W. Bull.

In his garden he delights to show the mother vine of the Concord Grape which he developed from a native Wild Grape planted as long ago as 1843. Another "sport" of great value was the nectarine, which was seized upon as it made its appearance on a peach-bough. Throughout America are scattered Experiment Stations, part of whose business it is to provoke fresh varieties of wheat, or corn, or other useful plant, and make permanent such of them as show special richness of yield; earliness in ripening; stoutness of resistance to Jack Frost, or blight, or insect pests. Suppose that dire disaster swept from off the earth every cereal used as food. Prof. Goodale, Prof. Asa Gray's successor at Harvard University, has so much confidence in the Experiment Stations of America, that he deems them well able to repair the loss we have imagined; within fifty years, he thinks, from plants now uncultivated the task could be accomplished. Among the men who have best served the world by hastening nature's steps in the improvement of flowers and fruits, stands Mr. Vilmorin, of Paris. He it was who in creating



Beetle-like Seed of Taro

the sugar beet laid the foundation for one of the chief industries of our time. One of his rules is to select at first not the plant which varies most in the direction he wishes, but the plant that varies most in any direction whatever. From it, from the instability in its very fibres, its utter forgetfulness of ancestral traditions, he finds it easiest in the long run to obtain and to establish the character he seeks of sweetness, or size, or color.

Much Can Be Done.

Of flowering plants there are about 110,000, of these the farmer and the gardener between them have scarcely tamed and trained 1000. What new riches, therefore, may we not expect from the culture of the future? Already in certain northern flower-plots the trillium, the blood-root, the dog's-tooth violet, and the celandine are abloom in May; as June advances, the wild violet, the milkweed, the wild lily-of-the-valley, unfold their petals; later in summer the dog-rose displays its charms and breathes its perfume. All respond kindly to care, and were there more of this hospitality, were the wild-roses which the botanists call *blanda* and *lucida*, were the cardinal-flowers, the May-flowers, and many more of the treasures of glen and meadow, made welcome with thoughtful study of their wants and habits, much would be done to extend the wealth of our gardens. Let a hepatica be plucked from its home in a rocky crevice where one marvels how it ever contrived to root itself and find subsistence. Transplant it to good soil, give it a little care—it asks none—and it will thrive as it never thrived before; proving once again that plants do not grow where they like, but where they can. The Russian columbine rewards its cultivator with a wealth of blossoms that plainly say how much it rejoices in his nurture of it, in its escape from the frost and tempest that have assailed it for so many generations.

But here we must be content to take a leaf out of nature's book, and look for small results unless our experiments are broadly planned. It is in great nurseries, and gardens, not in little door-yards that "sports" are likely to arise, and to meet the skill which can confirm them as new varieties.

Dr. William Seward Webb, of New York, has a mansion surrounded by spacious grounds at Shelburne, on the shores of Lake Champlain, seven miles from Burlington, Vermont. It is his intention next summer to adorn his grounds exclusively with wild flowers. Much interest attaches to the experiment, for the district, bordering as it does upon the Adirondacks, is florally one of the richest in America.

Japan has much to teach us with regard to flowers: nowhere else on earth are they so sedulously cultivated, or so faithfully studied in all their changeable beauty. Perhaps the most striking revelation of the Japanese gardener is his treatment of flowering shrubs and flowering trees disposed in masses. Happy the visitor to Tokio who sees in Spring time the cherry-blossoms ready to lend their witchery to the Empress' reception! Much is done to extend the reign of beauty in a garden when it is fitly bordered with berry-bearers. Rows of mountain ash, snow-berry and hawthorn trees give color just when color is most effective, at the time when most flowers are past and gone.

In the practical bit of ground where the kitchen garden meets the flowers, Japan has long since enlarged its bill of fare with the tuber of a cousin of our common hedge nettle, with the roots of the large burdock, commoner still. In Florida, the calla lily has use as well as beauty; it is cultivated for its potato-like tubers.

Flowers Gathered and Garnered.

Much as the study of flowers heightens our interest in them, their first, their chief, enduring charm consists in their simple beauty—their infinitely varied grace of form, their exhaustless wealth of changeable tints. Off we go with delight from desk and book to a breezy field, a wimpling brook, a quiet pond in woodland shade.



Perforated Stalk Holder.

A dozen rambles from May to October will show us all the floral procession, which, beginning with the trilliums and the violets, ends at the approach of frost with the golden-rod and aster. But who ever formed an engaging acquaintance without wishing it might become a close friendship? Never yet did the observant culler of bloodroot and columbine rest satisfied with merely knowing their names, and how can more be known unless flowers are set up in a portrait gallery of their own for the leisurely study of their lineaments and lineage?

A word then as to the best way to gather wild flowers. A case for them in the form of a round tube, closed at the ends, with a hinged cover, can be made by a tinsmith at small cost. Its dimensions should be about 30 inches in length by 5 inches in diameter, with a strap attached to carry it by. At still less expense a frame can be made, or bought, formed of two boards one-eighth of an inch thick, 24 inches long and 18 inches broad, with two thin battens fastened across them to prevent warping. A quire of soft brown paper, newspaper will do, and a strap to hold all together, complete the outfit.

Our gathered treasures at home, we may wish to deck a table or a mantel with a few of them. The lives of unpressed blossoms can be much prolonged by exercising a little care. Punch holes in a round of cardboard and put the stalks through these holes before placing the flowers in a vase. This prevents the stalks touching each other, and so decaying before their time. A small bit of charcoal in the water tends to keep it pure; the water, however, should be changed daily.

Flower Portraiture.

A flower will fade at last be it tended ever so carefully. If we wish to preserve it dried we can best do so as soon as we bring it home, by placing it between sheets of absorbent paper (newspaper will do) well weighted down, the paper to be renewed if the plants are succulent and if there is any risk of mildew. But a dried plant after all is only a mummy. Its colors are gone; its form bruised and crumpled, gives only a faint suggestion of it as it lived and breathed. Other and more pleasant reminders of our summer rambles can be ours. With a camera of fair size it is easy to take pictures of flowers at their best; these pictures can be colored in their natural tints with happy effect. Or, instead of the camera, why not at first invoke the brush and color-box? Only a little skill in handling them is enough for a beginning. Practice soon increases deftness in this art as in every other, and in a few short weeks floral portraits are painted with a truth to nature denied the unaided pencil. For what flower however meek and lowly could ever tell its story in plain black and white?



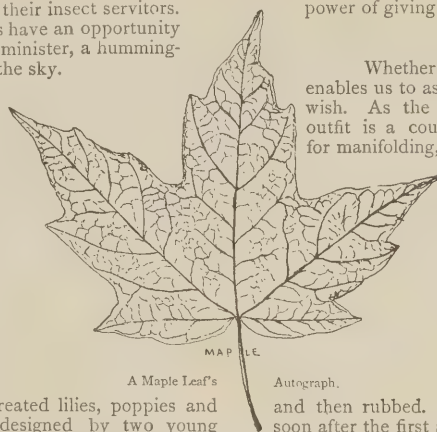
Plant Case.

The amateur painter of flowers learns a good many things by the way; at the very outset, that drawing accurate and clear must be the groundwork of any painting worthy the name. Both in the use of pencil and brush there must be a degree of painstaking observation, wholesome as a discipline and delightful in its harvests. How many of us, unused to the task of careful observation, can tell the number of the musk-mallow's petals, or mark on paper the depth of fringe on a gentian, or match

from a series of dyed silks the hues of a common buttercup? - Drawing and painting sharpen the eye, and make the fingers its trained and ready servants. From the very beginning of one's tasks in limning bud and blossom, we see them richer in grace and loveliness than ever before. When wild flowers are sketched as they grow it is often easy to give them a new interest by adding the portraits of their insect servitors. Amateurs who are so fortunate as to visit the West Indies have an opportunity to paint the wonderful blossoms of the *Marcgravia*, whose minister, a humming-bird, quivers above it like a bit of rainbow loosened from the sky.

Flowers In Design.

Early in the history of art the wild flowers lent their aid to decoration. The acanthus which gave its leaves to crest the capital of the Corinthian column, the roses conventionalized in the rich fabrics of ancient Persia, until they have been thought sheer inventions of the weaver, are among the first items of an indebtedness which has steadily grown in volume until to-day, when the designers who find their inspiration in the flowers are a vast and increasing host. In a modern mansion of the best type the outer walls are enriched with the leonine beauty of the sun-flower; within, the mosaic floors, the silk and paper hangings, repeat themes suggested by the vine, the wild clematis and the May-flower. The stained-glass windows, from New York, where their manufacture excels that of any other city in the world, are exquisite with boldly treated lilies, poppies and columbines. In the drawing-room are embroideries designed by two young women of Salem, Massachusetts, who have established a thriving industry in transferring the glow of wild flowers to the adornments of noble houses such as this.



A Maple Leaf's

As one goes from studio to studio it is cheering to find so many men and women busy at work which is more joyful than play,—which in many cases first taken up as recreation disclosed a vein of genuine talent and so pointed to a career more delightful than any other,—because it chimes in with the love of beauty and the power of giving it worthy expression.

Nature-prints of Leaves.

Whether we have the gift of art or not, a very pretty and simple process enables us to ask and receive from Nature as many of her autographs as we wish. As the process is new, let it be described with a little detail. The outfit is a couple of sheets of fresh carbon paper such as stationers sell for manifolding, half a dozen sheets of thin linen paper, and as much cartridge, or other paper, smooth in surface. The leaves for printing must be green, and neither wet nor dry. One of them, say a maple leaf, is laid rib side down on a sheet of carbon paper, and is then covered with a sheet of linen paper through which the outline of the leaf can be both seen and felt. A piece of soft cotton, or an old silk handkerchief, is now rubbed on the leaf, gently if the leaf is tender, with some pressure if the leaf is strong: the finger-tips moving outward from the mid-rib to the edges of the leaf. As soon as the leaf has gathered carbon enough it is lifted and placed, carbon side down, on the cartridge paper which is to receive its imprint. To make this imprint, the leaf is covered with a sheet of linen paper and then rubbed. A clear and beautiful image will reward one's pains very soon after the first attempt. With but a little practice an extremely pretty album can be made from leaves of every type, a touch from a pencil here and there filling in unavoidable short breaks of line.

Autograph.

GEORGE ILES.

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